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Forest  
Service

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# Environmental Assessment

## MEDICINE BOW-ROUTT NATIONAL FORESTS AND THUNDER BASIN NATIONAL GRASSLAND

### Winter Recreation Management

Hahns Peak Bears Ears and Parks Ranger Districts  
Routt, Jackson and Grand Counties, Colorado  
Townships 5N, 6N and 7N, Ranges 82W and 83W

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## SUMMARY

The Routt National Forest in northern Colorado proposes to formalize winter non-motorized use areas and winter motorized use areas on National Forest System lands within an approximately 111,000 acre area on Rabbit Ears Pass and on Buffalo Pass in Routt, Jackson and Grand counties by establishing on-the-ground boundaries for such uses.

The area is located east of Steamboat Springs Colorado, bounded by the Mt. Zirkel Wilderness Area on the north and the Sarvis Creek Wilderness Area on the south. Colorado State Hwy 40 bisects the analysis area from east to west. Hahns Peak Bears Ears Ranger District administers the western portion of the area. The Parks Ranger District administers the eastern portion of the area. This federal action will amend the 1997 Routt National Forest Land and Resource Management Plan. The action is needed because relying on informal or suggested-use areas has not been effective at minimizing safety concerns, minimizing user conflicts and promoting a quality winter recreation experience for all users.

Any action alternative will provide opportunity for effective management of uses, especially where conflicts are prevalent. The action alternatives will result in added management costs to the Forest Service in signs and enforcement. Some users may be displaced to other parts of the Forest.

The Forest Service evaluated the following alternatives, as they compare with Alternative 1, which formalizes the current suggested use boundaries:

- The No Action Alternative maintains the winter “suggested use” boundaries established by a citizen task force, which has not minimized safety concerns or user conflicts. Snowmobile riders are requested to restrict their riding to designated trails within the designated snowcat operating area. This alternative would not address water quality concerns related to snowmobile use in Management Area 3.23, Municipal Watershed which is the source of Steamboat Springs water supply.
- Alternative 1, the Proposed Action (Modified), formalizes the winter motorized and winter non-motorized boundaries separating uses in selected areas. Snowmobiles would be required to remain on groomed and designated routes inside the snowcat permit area, and snowmobiling on Fish Creek Reservoir and Long Lake (municipal water reservoirs) would be prohibited.
- Alternative 2 would expand the non-motorized area to include the snowcat operating area, Fish Creek drainage, and north and east to the Wilderness boundary. Snowmobiles would be required to remain on Buffalo Pass road (FSR 60) through the snowcat permit area and snowmobiling on Fish Creek Reservoir and Long Lake (municipal water reservoirs) would be prohibited. South Walton Peak is included within the non-motorized boundary. The boundary south of Hwy 40 would abut the current groomed snowmobile trail (5B).
- Alternative 3 would expand the motorized area to include more areas up to the east boundary of the Steamboat Ski Area, and Soda Mountain to the north. Snowmobiling

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would be prohibited on Fish Creek Reservoir and Long Lake (municipal water reservoirs).

- Alternative 4 would reduce the amount of motorized area by one percent (1%). The amount of non-motorized area east of the Steamboat Ski Area would be reduced, and the amount adjacent to Hwy 40 would be increased. Snowmobiles would be required to remain on groomed and designated routes inside the snowcat permit operating area. Snowmobiling would be prohibited on Fish Creek Reservoir and Long Lake (municipal water reservoirs).

Based on the analysis of the effects of the alternatives, the responsible official, the Forest Supervisor, will decide if boundaries are appropriate, and if so, where they are most appropriate. The responsible official may also decide to amend the Forest Plan by adding standards or guidelines within the analysis area.

# INTRODUCTION

## Document Structure

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The Forest Service has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. This Environmental Assessment (EA) describes the environmental effects of implementing a proposal to develop a winter recreation management plan for the Rabbit Ears Pass and Buffalo Pass areas on the Hahns Peak/Bears Ears and Parks Ranger Districts of the Medicine Bow and Routt National Forests and Thunder Basin National Grassland.

This EA is not a decision document: it does not describe the decision made by the Forest Supervisor about this proposed change in winter travel management. This EA discloses the environmental consequences of implementing the proposed action (modified) and alternatives to that action.

The document is organized into five parts:

- *Introduction:* The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- *Alternative Development:* This section provides a more detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes mitigation measures. Finally, this section provides a description of alternatives eliminated from detailed study.
- *Existing Conditions and Environmental Consequences:* This section describes the existing condition by resource area, and the resulting environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource area, and where appropriate, relative to specific geographic locations within the analysis area. Within each section, the existing condition is described first, followed by the effects of the No Action Alternative that provides a baseline for evaluation and comparison of the other alternatives that follow. A list of concerns and considerations from Routt County is also included in this section, as well as a section on Environmental Justice and the Civil Rights Impact Analysis.
- *Consultation and Coordination:* This section provides a list of preparers and agencies consulted during the development of the environmental assessment.
- *Appendices:* The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Hahns Peak Bears Ears Ranger District Office in Steamboat Springs, Colorado.

## Location of the Analysis Area

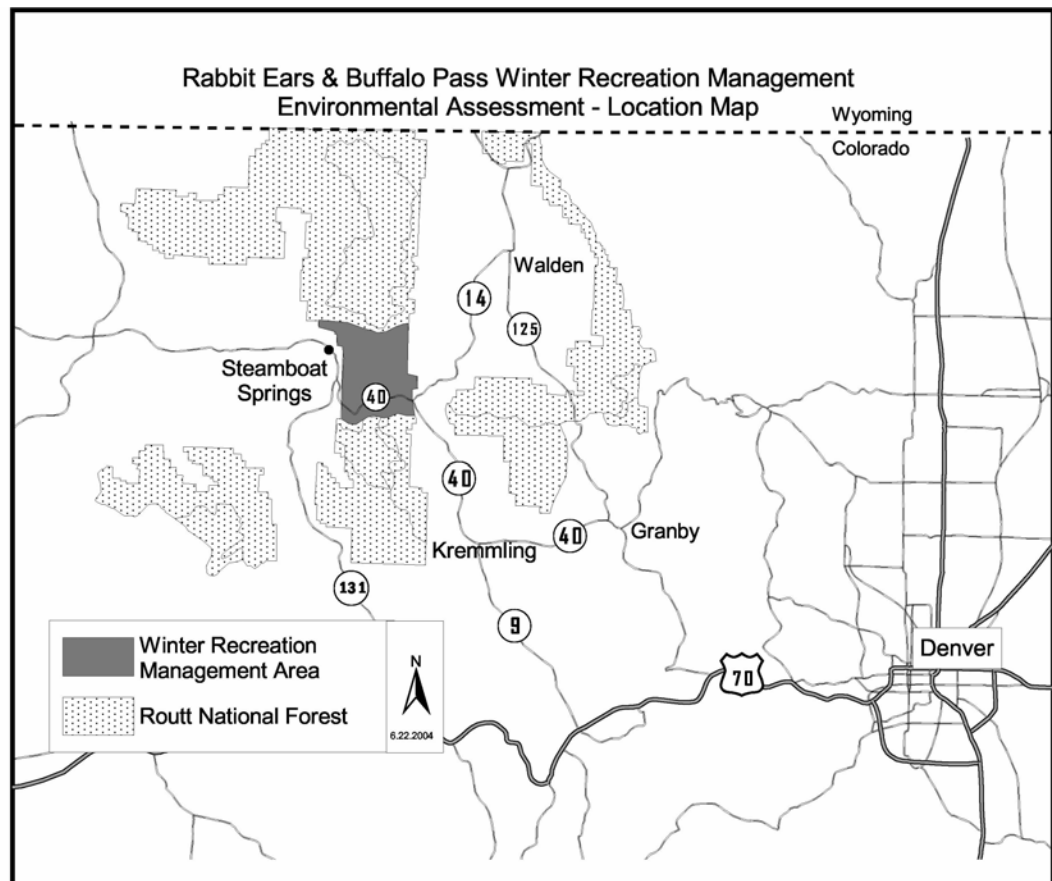
The analysis area is approximately 111,000 acres and is located in the Parks Range of the Routt National Forest. It is in the Middle Yampa Geographic Area (Forest Plan pp. 3-55-57), the Grizzly Creek Geographic Area (Forest Plan pp. 3-21-22), and the Red Dirt Geographic Area (Forest Plan pp. 3-89-91). The Area is bounded on the northern edge of Buffalo Pass from the southern boundary of Mt. Zirkel Wilderness Area east to the Forest boundary and Grizzly Winter Use Parking Lot; and from the southern boundary of Mt. Zirkel Wilderness west, including the backcountry skiing and snowcat operating area to the west boundary of the Forest near Dry Lake Parking Lot. It is bounded on the southern edge of the Hahns Peak Ranger District by the northern edge of Sarvis Creek Wilderness, west to the boundary south of Lake Catamount, and east to the boundary south of Lake Agnes (Figure 1).

The analysis area contains several management areas with varying direction and desired future conditions. The following table displays the Management Areas, Management Area titles and acres within the analysis area that are managed under that direction.

Management Area	Management Area	Acres
1.32	Backcountry Non-Motorized Rec. (Limited Winter Motorized)	34,982
5.11	General Forest and Rangelands - Forest Vegetation Emphasis	20,023
3.23	Municipal Watershed	15,964
4.2	Scenery	14,197
4.3	Dispersed Recreation	7,097
5.12	General Forest and Rangelands - Range Emphasis	3,990
8.22	Ski Based Resorts (Catamount area only)	3,482
3.31	Backcountry Year-Round Motorized Recreation	3,195
5.41	Deer and Elk Winter Range	2,881
5.13	Resource Production – Forest Products	2,620
7.1	Residential/Forest Interface	1,479
2.1	Special Interest Areas - Minimal Use and Interpretation	1,079
<b>TOTAL</b>		<b>110,989</b>

This proposal will not change management area boundaries but rather develop a winter recreation use map, with related forest supervisor orders, consistent with Management Area titles and desired future conditions. Three management areas located within the analysis area may not be adjusted from the current direction. MA 3.31 is established as Backcountry Year Round Motorized so winter motorized use will continue to occur there. MA 8.22, Ski Based Resorts and MA 5.41 Deer and Elk Winter Range prohibit winter motorized uses so general winter motorized uses in these management areas will not be considered.

**Map 1 – Location of the Analysis Area**



## **Background**

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### ***Defintions***

Non-Motorized Area: An area where non-motorized uses occur. Motorized use, including hybrid use of the area is prohibited.

Motorized Area: A mixed use area where motorized, non-motorized, and hybrid uses occur.

Hybrid use: Snowmobile or other motorized (i.e.; snowcat) assisted skiing in the backcountry. Hybrid use is not allowed in non-motorized areas.

### ***Visitor Use***

The 2001 National Visitor Use Monitoring project estimated winter recreation visits, along with total Forest recreation visits. Winter activities represented 57.5% of total yearround visits to the Routt National Forest; 50.6% were downhill skiing/snowboarding, 4.1% were snowmobiling, and 2.8% were cross-country skiing. This monitoring project revealed that fifty percent (50%) of the visitors surveyed said that their primary activity was downhill skiing; 3.9 percent said their primary activity was snowmobiling, and 2.3% said their primary activity was cross-country skiing.

### ***Suggested Use Area***

The 1997 Forest Plan does not provide comprehensive direction for winter recreation, on Rabbit Ears Pass, specifically mapping winter motorized and winter non-motorized use areas. Winter users in conjunction with the Forest Service had established suggested use areas where users were expected to abide by the posted suggested use, but compliance with that suggested use relies on the honor system.

### ***Area behind the Steamboat Springs Ski Area***

Some snowmobilers access the area adjacent to the Steamboat Ski Area that is also used by backcountry skiers. Although the ski area is closed to winter motorized use except by permit, some snowmobilers cross into the ski area to access Mt. Werner to view the Yampa Valley. The current suggested use boundary limits motorized access to the area east of the ski area. Motorized users have requested access to the area immediately adjacent to the ski area.

### ***Hogan Park Ski Trail***

Another area where snowmobile riders and skiers have experienced conflict is the Hogan Park Ski Trail. The trail, the only long-distance adventure on Rabbit Ears, provides skiers with access to the area behind the Steamboat Ski Area from Rabbit Ears Pass. Snowmobile riders like the meadows to the west of the trail, which currently marks the westernmost boundary where motorized use is 'suggested'. This trail is frequently crossed by snowmobiles, in some cases coming in close contact with skiers on the trail.

### ***Buffalo Pass and Dry Lake Parking Lot***

Dry Lake Parking is the only parking lot that accesses Buffalo Pass from the west (Steamboat) side of the mountain. Separating uses in this area is most difficult because there are five major user groups; snowmobilers, skiers, snowshoers, private snowcats,

and hybrid users (see definitions), as well as a permittee operating a snowcat skiing operation. Most users don't venture past a four mile distance from the trailhead (letter from the Task Force in Steamboat Today, March 20, 2001). Snowmobile riders come north from Rabbit Ears Pass and west from North Park.

### ***Rabbit Ears Pass***

The task force generally confirmed the suggested use boundary locations (shown on the Alternative 1, Proposed Action (Modified) map). Efforts were made to sign these boundaries and educate the public at trailheads. The task force used numerous communication strategies to insure all users were contacted or informed at trailhead signs. During the past few winter seasons, snowmobile tracks in areas suggested for non-motorized use indicated that the suggested use boundaries were not effective in separating uses.

### ***Forest Supervisor Order***

There is currently a Forest Supervisor Order (#2003-37) regarding use of snowmobiles during low snow periods. Under the section, "Additional Information," it reads, "In areas open to snowmobiles operating on snow and where not otherwise prohibited, closed roads are available for snowmobile use if operating on a minimum of 12 inches of snow. 36 CFR 261.54(a).

### ***Technology***

Improvements in snowmobiles and in backcountry ski equipment, increased use of snowmobiles and snowcats to transport skiers to the backcountry, GPS technology, and extended cell phone coverage have contributed to increased winter use. Users have different expectations or definitions of quality winter recreation. These conditions increase the chance for conflicts among user groups.

## **Purpose and Need for Action**

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The purpose for this action is to formalize boundaries between winter motorized and non-motorized use areas on Rabbit Ears Pass and Buffalo Pass and develop objectives, standards and/or guidelines that will assist in resolving the winter recreation use issues in the project area. This proposal is critical due to increasing use in all aspects of winter recreation; recreational snowmobile riders, hybrid skiers with snowmobiles, snowcat operations (private and commercial), backcountry skiers, trail skiers, and snowshoers.

In the mid-1980s, winter users worked with the Forest Service to establish suggested motorized and non-motorized use areas on Rabbit Ears Pass. The suggested use system was expected to give users the personal responsibility of respect for other users' experiences. This agreement between users was beginning to break down at the time the 1998 Routt Forest Plan was approved. An increasing level of disregard for the suggested use areas and other winter issues were identified in the Forest Plan Environmental Impact Statement (EIS, pp 3-165, 3-226, and Appendix K pp 255, 259, 260-264).

In 1999, a coalition of user groups was assembled as the "Routt Winter Task Force" to help suggest use areas in the Rabbit Ears Pass area, and to look at a similar system on Buffalo Pass. The task force's stated mission was to help the Forest Service "provide a balance of recreation opportunities including a variety of terrain with a system of easily identified trails and; 1) reliable quiet areas for non-motorized use and; 2) maintained

motorized loop trails and snow play areas and; 3) designated motorized routes to access non-motorized areas. The task force was unable to reinstate suggested use areas that are acceptable to all users.

The suggested use boundary is no longer effective. User conflicts in outdoor recreation arise when one individual's experiential goals can't be fulfilled as a result of another's actions (whether or not the other individual knows what they did). People who want a quiet experience are complaining about the noise from snowmobiles. Separating users would help ensure safety and minimize user conflicts.

Users cannot agree on 1) the need to establish boundaries, 2) on the current boundary location behind the Steamboat Ski Area, and 3) the need for some limitations inside the currently permitted commercial snowcat operating area.

*Executive Order* (EO) 11644 "establishes policies and provides procedures that will ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands" (EO 11644, Sec. 1) (see Appendix A).

The NEPA process provides for public involvement, consideration of public issues, analysis and disclosure of a range of alternative actions and an enforceable decision.

The decision to be made is where to designate winter motorized use areas and winter non-motorized use areas and what if any additional objectives, standards and guidelines will be approved in support of the use areas.

(Originally, this proposal included Analysis Area A – Rabbit Ears and Buffalo Pass and Analysis Area B – North Routt County, including Columbine and Hahns Peak. Due to limited time and funding, Analysis Area A was selected over Analysis Area B for analysis and decision. Analysis Area B will be considered in the future.)

## **Proposed Action**

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The Proposed Action (modified as a result issue raised at public meetings):

- Formally designates enforceable area boundaries and routes that currently provide opportunities for motorized use and non-motorized use. Motorized use is where motorized, non-motorized, and hybrid uses occur.
- Designates enforceable routes in the area marked as “Backcountry Skiing and Snowcat Operating Area” for “Motorized trail riding on groomed and marked routes only,” once these routes are established each season.
- Designates the non-motorized trails on the east end of Buffalo Pass for non-motorized use, except for the section of motorized-use trail that follows the Grizzly Helena Road (NFSR 615).
- Designates Fish Creek Reservoir and Long Lake as non-motorized. (this address water quality concerns for the Steamboat Springs municipal water supply that came up during public comment process)



## Public Involvement

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The proposal was listed in the Schedule of Proposed Actions on September 2003, January 2004, and April 2004. The proposal was provided to the public and other agencies for comment between January 7 through February 13 (included a 5 day extension). In addition, as part of the public involvement process, the agency sponsored open houses the week of January 26 in four communities/locations around the Forest to discuss the project proposal. Once the alternatives were developed, the Forest Service went back out to the public the week of March 15, at three locations, to present the preliminary Alternatives and ask for affirmation or reasons for changes. In addition to open houses, all documents and the associated maps were posted on the Forest's web site at [www.fs.fed.us/r2/mbr/](http://www.fs.fed.us/r2/mbr/).

Routt and Jackson County Commissioners have been informed at every step in the process, and the Routt County Planner's office has been involved to provide their expertise on the proposal and alternatives from the County's perspective. Winter use organizations were contacted and asked to share this proposal with their members who may not have access to our local public involvement effort. Numerous press releases and newspaper articles were published, including process information, implementation and recreation fee demonstration challenges and opportunities. There were also phone call inquiries about the project.

The Forest received 682 comment letters responding to the scoping statement, and another 220 responses to the alternative open houses. Using the comments from the public, other agencies, and the Counties, the interdisciplinary team developed a list of issues to be addressed in the analysis.

## Issues

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The Forest Service separated the issues into three groups: 1) Significant issues used to develop alternatives to the Proposed Action; 2) Non-significant issues which were addressed through mitigation measures common to all alternatives or resource concerns that will be compared across alternatives and considered by the responsible official; and 3) Other issues that are: a. Beyond the scope of the analysis, or b. Already decided by law, regulation, Forest Plan, or other higher level decisions.

The Council for Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)..."

### Significant Issues

Quality of Winter Recreation Experience: Users' concerns, as expressed in the comments include:

Non-motorized users are not currently able to achieve their preferred quality experience due to a lack of accessible trails and lack of areas out of sight and sound of snowmobiles. Alternative 2 responds to this issue.

Snowmobile riders want a quality recreation experience that includes minimal to no restrictions, and additional parking and toilets. Alternative 3 responds to this issue.

Hybrids want mountain accessibility with opportunities for a variety of terrain (steep) and snow conditions (powder). Alternative 3 responds to this issue.

#### Adequate Parking and Facilities for Day use and Overnite Parking

Dry Lake parking lot is used beyond its design capacity resulting in conflicts between users.

There is a need for additional day use motorized parking on Rabbit Ears Pass (Hwy 40), as the current parking areas are experiencing use beyond their capacity.

There is also a need for designated overnight parking on Rabbit Ears Pass (CDOT, 2004), and at Dry Lake Parking Lot (Routt County, 2004).

Alternatives 3 and 4 respond to the above issues.

Protect Wilderness Areas from motorized uses: Wilderness incursions by motorized users are increasing. Alternative 2 responds to this issue.

Public Water Supply Water Quality - The main emphasis of the 3.23 management area (municipal watersheds), is water quality for public health. The concern is that any concentration of fuels in the snow on standing waterbodies could adversely affect the water supply for Steamboat Springs during spring thaw (Appendix C). Potable water for the City of Steamboat Springs originates on Buffalo Pass and Rabbit Ears Pass. The City has requested that snowmobile use be prohibited on two key reservoirs where water pools and the risk to the water resource increases with increasing use. Alternatives 1-4 respond to this issue.

Recommended design criteria have been included in this EA in accordance with Forest Plan Forestwide direction and the Water Conservation Practices Handbook (FSH 2509.25) (see Appendix C for a full listing of these design criteria).

Canada Lynx: considerations include snow compaction and recreation disturbance of wintering wildlife.

In 2002, the Colorado Department of Transportation built two underpasses for the Canada Lynx as part of the reconstruction of Hwy 40 at Muddy Pass. These underpasses represent a significant investment for wildlife for the State of Colorado. In order for wildlife to use the underpasses, it is important to restrict human use from the area around them. Alternatives 2, 3 and 4 respond to this issue.

#### Non-Significant Issues

Rare Plant concerns; winter recreation specifically affects rare plants due to snow compaction, ice dams, shoulder season use, and fuel and oil spillage. Other concerns are the effects of continual use on fens (fens are wetlands with water-saturated substrates and an accumulation of about 30 cm or more of peat). Because of their water-holding capability, fens provide very stable habitats. Many of the fens in the Region are over 10,000 years old, and are essentially irreplaceable. (A Monitoring Plan will be established to measure changes over time from baseline conditions.)

Hydrologic and Soil considerations include the compaction and subsequent soil temperature effects from heavy use, the effects to willows and riparian vegetation, and the effects of fuel spillage on water quality. (See Features Common to All Alternatives will address this issue.)

Surface damage to roads and trails -*The 2003 Routt Roads Analysis Report* identified a concern over shoulder season use of roads, which not only creates opportunities for damage to the road in early season snow, and in late season during snow melt, but also limits the use of these roads for snowmobile use. Joint use of roads by vehicles and snowmobiles is a concern, and should not be encouraged. Early and late season motorized use of winter trails is a concern, when snow amounts are low. In addition, there are concerns over unauthorized wheeled vehicle use on snowmobile trails. (See Features Common to All Alternatives will address this issue.)

Economic Viability of permitted use -Permitted snowcat operator is concerned with the economic viability and safety of the operation due to increased use in the permitted area. (Recreation, Social and Economic Environmental Consequences will display projected changes resulting from implementing the alternatives)

## Other Issues

Wilderness Areas – **Some commenters felt that the USFS should** open up Wilderness Areas to motorized users to disperse and accommodate increasing winter recreation use. This is not legal. Wilderness Areas are unavailable for motorized uses in accordance with the Wilderness Act.

Wilderness Areas – **Some commenters felt that the USFS should** encourage skiers to use the Wilderness Areas as a means of increasing winter non-motorized user areas. Motorized or mechanized trail grooming is prohibited in Wilderness Areas. Wilderness areas are intended to stay wild; wilderness recreation and wilderness access is intended to be primitive and difficult. In addition, Wilderness Areas are outside the analysis area for this project.

## **ALTERNATIVE DEVELOPMENT**

The alternatives were developed in response to the significant issues raised through public and internal scoping. The interdisciplinary team of resource specialists considered comments from public meetings, letters and email correspondence to ensure all substantive comments were incorporated into the process. The team made sure each of the alternatives responded to the Purpose and Need (P&N) for action, was legal and was selectable by the deciding official. Those alternatives that were tentatively considered, but not carried forward for detailed analysis are discussed later in this chapter under *Alternatives Considered but Eliminated from Detailed Study*.

### Features Common to all Action Alternatives

The following proposed changes to the Routt Forest Plan provide direction in the analysis area for managing winter recreation. They include a definition of winter and summer

seasons, specifically for those shoulder seasons when snow depths vary, and resources are most susceptible to resource damage, and standards for applying the current Forest Plan management area direction for water quality in Management Area 3.23. Changes recommended would apply only to the analysis area, and would constitute an amendment (Appendix D).

Definitions:

Summer: Season lasting approximately six months (mid May to mid November), characterized by lack of snow or non-contiguous patches of receding snow.

Summer varies from less than six months at higher elevations, to more than six months at lower elevations. In addition to varying by elevation, summer varies according to local weather.

Winter: Season lasting approximately six months (mid November to mid May) and characterized by contiguous snow cover or accumulating snow cover. Winter may vary from more than six months at higher elevations, to less than six months at lower elevations. In addition to varying by elevation, winter varies according to local weather.

**Standards** are actions that must be followed or are required limits to activities in order to achieve forest goals. Deviations from standards must be analyzed and documented in a forest plan amendment.

**Guidelines** are advisable courses of action that should be followed to achieve forest goals. Deviations from guidelines must be analyzed during project level analysis and documented in a project decision document but do not require a forest plan amendment.

1. Prohibit winter motorized recreation on any open surface water in the analysis area - responds to Water Quality (non-significant issue) concerns. (Standard)
2. Close designated groomed over-the-snow routes (roads or trails) to wheeled vehicles unless the use is permitted, which prevents rutting and safety concerns for snowmobile users, and soil and water issues during low snow periods. (Guideline)
3. Implement design criteria as outlined in the Watershed Conservation Practices (WCP) Handbook to protect soil, aquatic, and riparian systems. The practices apply to all actions on National Forest System (NFS) lands, and are part of the Routt Forest Plan (Appendix C).
  - a. Allow heavy over-snow tracked vehicles (i.e. snowcat, groomers) to operate on snow depths that equal or exceed 18". Special use permits will be reviewed on a case-by-case basis. This measure responds to soil and water issues during low snow periods. (Guideline)
  - b. Allow winter motorized recreation when unpacked snow depths equal or exceed 12 inches; exceptions are allowed during the spring and fall season on classified roads across transition zones so long as it does not cause visible damage to the road surface. This measure responds to groundcover issues during low snow periods. (Guideline)

## **Monitoring**

- Monitor impacts of winter recreation and snow compaction on subnivean wildlife (proposed research study).
- Monitor known occurrences of sensitive plant species and fens for up to five years to assess impacts from winter recreation use.

## **Alternatives Addressed in Detail**

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This section describes and compares the alternatives considered for the winter recreation management analysis. It includes a description and map of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public. Some of the information used to compare the alternatives is based upon the design of the alternative (i.e., motorized vs. non-motorized areas) and some of the information is based upon the environmental, social and economic effects of implementing each alternative (i.e., the likelihood that users will respect the decision and comply with the restrictions).

## **Changes to the Alternatives**

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The action alternatives were modified since they were presented to the public at the second set of public meetings. They respond to issues brought forward by the public, USFS, and USFWS at that time. They include restrictions to address concerns over water quality in the municipal watershed, map changes that reflect Forest Plan direction in MA 5.41, and the need for a Lynx/wildlife corridor around the newly installed underpasses on the east end of Rabbit Ears Pass at Muddy Pass Lake.

### No Action Alternative

- No changes to this Alternative.

### Alternative 1 – Proposed Action (Modified)

- Prohibits winter motorized use on Long Lake and Fish Creek Reservoirs.

### Alternative 2

- Prohibits winter use in 4,163 acres of the Lynx/wildlife corridor areas on the east edge of the Forest near Rabbit Ears Pass (Hwy 40), including Muddy Pass Lake.
- Prohibits winter motorized use on Long Lake and Fish Creek Reservoirs.

### Alternative 3

- Prohibits winter use in 391 acres of the Lynx/wildlife corridor areas on the east edge of the Forest near Rabbit Ears Pass (Hwy 40), including Muddy Pass Lake.
- Prohibits winter motorized use on Long Lake and Fish Creek Reservoirs.

### Alternative 4

- Prohibits winter use in 1,649 acres of the Lynx/wildlife corridor areas on the east edge of the Forest near Rabbit Ears Pass (Hwy 40), including Muddy Pass Lake.
- Prohibits winter motorized use on Long Lake and Fish Creek Reservoirs.

## Comparison of Alternatives

This Section summarizes the issues addressed by each alternative. The following table compares the alternatives relative to various issues identified through public involvement.

**Table 1 – Comparison of Alternatives\***

<b>Description Item</b>	<b>No-Action Alternative</b>	<b>Alternative 1 Proposed Action (Modified)</b>	<b>Alternative 2</b>	<b>Alternative 3</b>	<b>Alternative 4</b>
Winter Motorized Acres (percent of total)	74,543 acres (67.1%)	74,543 acres (67.1%)	59,453 acres (53.5%)	78,857 acres (71%)	73,824 acres (66.5%)
Winter Non-Motorized Acres (percent of total)**	31,582 acres (28.4%)	31,582 acres (28.4%)	42,517 acres (38.4%)	26,827 acres (24.2%)	30,653 acres (27.6%)
Commercial Snowcat permitted acres (percent of total)	No general off trail use. Groomed trails open to all. 4,930 acres (4.4%)	No general off trail use. Groomed trails open to all. 4,930 acres (4.4%)	No general off trail use. Groomed trails open snowcat permittee and to non-motorized only (exception - Buffalo Pass Road open to all). 4,930 acres (4.4%)	No restrictions (off trail use allowed) and groomed trails open to all. 4,930 acres (4.4%)	No general off trail use. Groomed trails open to all. 4,930 acres (4.4%)
Adequate Parking (day use and overnite)	Buffalo Pass approx. 40 spaces; Rabbit Ears approx. 50 spaces (existing condition)	Same as no-action alternative	Same as no-action alternative	Same as no-action with increase in motorized parking into current non-motorized area on Rabbit Ears Pass	Same as no-action alternative with increased overnight parking opportunities at Muddy Pass and Old Columbine

<b>Description Item</b>	<b>No-Action Alternative</b>	<b>Alternative 1 Proposed Action (Modified)</b>	<b>Alternative 2</b>	<b>Alternative 3</b>	<b>Alternative 4</b>
Wilderness Protection from Motorized Incursion	No provision	No provision	Non-motorized area extends north and east to wilderness boundary	No provision	No provision
Lynx/Wildlife Corridor No Winter Use Acres (percent of total)	0	0	4,163 (3.7%)	391 (<1%)	1,649 (1.5%)
Public Water Supply - water quality	Fish Creek Reservoir and Long Lake are open to winter motorized use	Fish Creek Reservoir and Long Lake closed to motorized use	Fish Creek Reservoir and Long Lake closed to motorized use	Fish Creek Reservoir and Long Lake closed to motorized use	Fish Creek Reservoir and Long Lake closed to motorized use
Groomed Motorized Trail Miles	70.61	70.61	70.61	70.61	70.61
Ungroomed Motorized Trail Miles	22.21	22.21	18.58	23.26	22.21
Ungroomed Non-Motorized Trail Miles	33.03	33.03	33.03	33.03	33.03
Public Water Supply Water Quality	Motorized use on Fish Creek Reservoir and Long Lake	Fish Creek Reservoir and Long Lake closed to motorized use	Fish Creek Reservoir and Long Lake closed to motorized use	Fish Creek Reservoir and Long Lake closed to motorized use	Fish Creek Reservoir and Long Lake closed to motorized use

\*The no action has no acres specifically designated motorized or non-motorized, outside the Wilderness and Ski Area boundaries.

\*\*Permitted Ski Area acres aren't included in the total acres.

It has been pointed out that not all acres are useable. This is true in winter and in summer, but because we have no proven criteria to define useable, and some of it is up to individual interpretation (what's too steep for one person is just a challenge to another),

no attempt was made to distinguish these acres. The Forest has not identified hazard zones, such as avalanche areas in this analysis area.

Following are a series of linked maps. Due to their size (11x17), readers can have a clear picture of each alternative by using the Adobe Acrobat reader format. Double click on the maps below. Use the link, below, to download Acrobat Reader version 6.0, if you don't already have this feature on your computer. The Reader is free.

[Adobe.](#)

**[Map 2](#) – No Action Alternative**

**[Map 3](#) – Modified Proposed Action Alternative**

**[Map 4](#) – Alternative 2**

**[Map 5](#) – Alternative 3**

**[Map 6](#) – Alternative 4**



## **Alternatives Considered but not Analyzed in Detail \_\_\_\_\_**

In response to scoping, several comments included suggestions for alternatives or alternative actions. Many of these suggestions may be found in the alternatives considered in detail; others were eliminated from study. The ideas and rationale for their elimination are presented below.

### **Prohibit or restrict motorized use inside the entire 16,000 acre Municipal Watershed - Management Area 3.23.**

Two recommendations were suggested for managing winter motorized use to protect water quality in the watershed:

1. Discontinue all winter-motorized use inside the Municipal Watershed.
2. Recommend snowmobiles be required to have 4-stroke engines in MA 3.23 - Municipal Watershed.

The team agreed that these measures were unreasonable, and that more specific design criteria (as outlined in significant issue of water quality) would provide protection to water quality. In addition, monitoring the effects of snowmobile riding in this watershed will be part of the mitigation common to all alternatives.

### **Alternate years for skiing and snowmobiling by area.**

Effective management of users depends on consistency in use and types of use from year to year. This alternative does not appear to be logistically feasible for managers or supportive of the needs and plans of the winter recreation users.

### **Motorized Only Areas (rather than motorized that permits non-motorized and hybrid use).**

This proposal was made to the team during open houses for the initial scoping and for the alternatives. No potential locations were identified as serving the purpose of preserving or securing a more quality riding experience by eliminating skiers.

### **Eliminate oversnow motorized use on the north side of Hwy 40 (Rabbit Ears Pass), west of Rabbit Ears, designate east edge and south side for snowmobilers.**

Oversnow motorized use is fully within the range of recreational opportunities to be provided by the USDA Forest Service. This alternative would not be in accordance with the purpose and need, or the objectives of the project, which is to provide a quality recreation experience to all recreationists.

### **Eliminate non-motorized use on the north side of Hwy 40 (Rabbit Ears Pass); designate south side for skiers.**

This alternative approach would effectively create a manageable boundary with the highway, but it also creates a snow quality boundary out of the highway. The quality of the snow on Rabbit Ears and north is better than many areas in the State. This is one of the reasons some winter users will regularly travel to the area from as far away as Denver, Nebraska, and Wyoming. This alternative also eliminates the opportunity for snowmobile riding from Gore Pass to Rabbit Ears Pass on NFSR 100 (snowmobile trail 1A). Along with providing alternatives, the public offered their interpretation of quality

experiences. The area south of the Hwy has less useable terrain for skiers, unless they can travel long distance.

**Eliminate oversnow motorized use in traditionally used backcountry ski areas.**

Some areas on the Pass are favorites for backcountry users and snowmobilers alike; Little Snowbird, Little Siberia, the old ski loop east of Hogan Park, Hackenbiler Hill, Baker Mountain, and Plowshack Hill. It was determined that using a shotgun approach to restricting or allowing use on the Pass would be difficult to sign, enforce, or to use education to encourage compliance.

**Allow joint use of the currently non-motorized parking areas on the north side of Hwy 40 (Rabbit Ears Pass).**

This proposal would provide additional parking inside and adjacent to the non-motorized use area. There is an old timber road that could be used as a motorized corridor from the two easternmost non-motorized parking areas to Dumont Road, however this corridor is perpendicular to and through the designated non-motorized trails.

**Allow snowmobile access to Buffalo Pass from adjacent homes by way of the non-motorized area north of Buffalo Pass Road**

This request from a few landowners adjacent to the Forest would allow them to use the Forest without having to drive a mile up the hill to unload their snowmobiles and take up additional parking. USDA Forest Service policy does not provide exclusive use or access.

## **EXISTING CONDITIONS AND ENVIRONMENTAL CONSEQUENCES**

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the table above.

### **Recreation**

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#### Existing Condition

##### **Analysis Area**

There are five areas, specifically addressed in this EA; the area around the Steamboat Ski Area, Dry Lake Parking Lot, Buffalo Pass, Hogan Park Ski Trail, and Rabbit Ears Pass. In addition, Mt. Zirkel Wilderness is located on the northern edge, where snowmobile activity has been increasingly encroaching into the designated Wilderness Area. A brief discussion of the issues specific to these areas is available in the Background section of this EA.

## **Visitor Use**

Visitor use numbers on national forest system lands are often difficult to determine. In many national parks and monuments, for example, visitors must pass through an entrance station and pay a fee to enter the park, and use numbers are easily tracked. In national forests, however, visitors have many opportunities to explore roads and trails without paying a fee or even seeing Forest Service personnel.

Several efforts to track visitor use, and winter use specifically, have been made on the Routt National Forest. These include the 1994-1995 National Survey on Recreation and the Environment and its associated reports, the National Visitor Use Monitoring (NVUM) survey in 2001, and a survey conducted by the Routt Winter Task Force between 1999 and 2001.

The National Survey on Recreation and the Environment (NSRE) has been conducted since 1960. Reports from the 1994-1995 NSRE include outdoor recreation participation trends and projections for outdoor recreation participation to the year 2050. According to Chapter V: Outdoor Recreation Participation Trends (Cordell, et al., 1999: 220), “the NSRE covers participation in over 80 activities, ranging from casual walking outdoors to more challenging activities such as rock climbing and white water canoeing.” Since 1982-1983, the population of the nation has increased by 13.4% while participation in snowmobiling grew by 34% and participation in cross-country skiing grew by 22% (Cordell et al., 1997). Nationwide, 3.6% of the population participates in snowmobiling and 3.3% participates in cross-country skiing (Cordell et al., 1999). Both snowmobiling and cross-country skiing participation rates are expected to increase faster than the rate of population growth in the Rocky Mountains to the year 2050 (Bowker, English, and Cordell, 1999).

From October 2000 to September 2001, the NVUM survey was conducted for the Routt National Forest. This national survey of visitor recreation use was designed to provide a statistically significant sample of forest users over a year-long time period. It did not look at use at specific sites or areas, or at visitor use on a district level. Sample locations were randomly selected from all forest exit points, and visitors were contacted as they were leaving the forest. People who were not recreating were excluded from the analysis. Results indicate that over 1.5 million people visited the Routt National Forest during the 2001 fiscal year. The majority of recreation visits were for downhill skiing (51%). Four percent of recreationists participated in snowmobiling, and 2.8% participated in cross-country skiing or snowshoeing.

In 1999-2000 the Routt Winter Task Force conducted a Rabbit Ears Winter Survey to assess user demographics, amount of use, and preferences for use. A similar survey was conducted in 2000-2001 in the Dry Lake and Buffalo Pass areas. The results of these surveys are not statistically significant nor do they represent a random sample of winter recreationists, but they do provide a snapshot of winter recreationists for two seasons of use. The surveys showed that over 50% of motorized users came from the Front Range, while many non-motorized users were from Routt County. Approximately 30-40% of users participated in cross-country skiing or another non-motorized activity, while 50-60% participated in snowmobiling or other motorized activities.

Overall, users rated their experience in the Rabbit Ears Pass area very high with 98% of survey participants saying that it was good, very good, excellent, or perfect. However,

comments from the survey forms revealed that conflicts did exist between motorized and non-motorized users, and other issues such as lack of parking, lack of signing, and inadequate restroom facilities needed to be addressed

### **Conflict**

Recreation conflict is inherently a social impact. It is not associated with traditional recreation resource impacts such as harassment of wildlife by recreationists or soil compaction on trails and at campsites. When the noise from one group's activities causes stress to another group, it is not the noise itself that triggers a negative reaction. According to Cessford (2000: 69), "[the social impacts] are affected much more by the meanings and associations attributed to those noises by the people perceiving some impacts." A person's perceptions and expectations of a recreation experience define what that experience means to them. For some, quiet, solitude, and a peaceful setting are the definition of a quality recreation experience. For others, adventure, thrill, and challenge are what make the recreation experience acceptable. In many cases the same setting attracts different users groups with different expectations of the recreation experience. According to Cessford (2000, p.70), "These are not simply cases of one activity versus another, but of how different people value and define their recreation experiences, and how they differ in their perceptions of what are acceptable experience conditions."

Recreation conflict has a long and varied research history in both land management agencies and at universities. At its simplest level, conflict is merely competition over resources (Vaske, Donnelly, Wittmann and Laidlaw, 1995). Others define conflict as interference with a recreationist's goals, and it happens when "the behavior of another hinders one's achievement of social, psychological, or physical goals" (Gibbons and Ruddell, 1995: 172). Often, conflict is asymmetrical, where user-group A's values or goals are threatened by user-group B's activities, but user-group B does not have a problem with A's activities. A common example is motorized and non-motorized use. Non-motorized users generally prefer activities where the noise of motorized equipment is not present, and they feel threatened when a motorized machine is heard or seen. Motorized users, on the other hand, are usually not bothered, and sometimes enjoy seeing, non-motorized users (Vaske et al., 1995).

In some cases conflict is mutual where neither user-group agrees with each other's values or goals. For example, a study conducted at five Colorado ski areas found that skiers and snowboarders had different values and each considered the other an "out-group" although they shared the same resource (Vaske, Carothers, Donnelly and Baird, 2000). The authors suggest that "physically separating the two activities by developing specific trails or attraction areas for each group would help to reduce some of the negative interaction that occurs and may minimize safety concerns" (Vaske et al., 2000: 311). Mutual conflict is often the result of two groups who do not share the same norms or values but whose setting preferences overlap (Vaske et al., 1995).

Safety is another concern associated with conflict. Simply hearing a motorized vehicle can interfere with a non-motorized user's recreation goals by causing anxiety about accidents (Cessford, 2000). Even among non-motorized user groups, e.g. hikers and mountain bikers or skiers and snowboarders, the fear of accidents and collisions is a strong indicator of conflict. The more traditional users (hikers, skiers) attribute conflict

to the perception of reckless or out-of-control behavior by the newer users (mountain bikers, snowboarders, snowmobilers) (Ramthun, 1995; Vaske et al., 2000).

There are several management implications for addressing conflicts on public lands. They range from indirect actions such as posting signs on trail etiquette and visitor education efforts, to more manipulative techniques such as providing separate use areas for different activities and even eliminating controversial activities altogether (Watson, Asp, Walsh, and Kulla, 1997; Vaske et al., 1995; Vaske et al., 2000). Some research suggests that voluntary use boundaries may reduce conflict (Watson et al., 1997); however, when these fail to work more restrictive management actions are required to ensure the desired visitor experience is achieved.

According to Miller and McCool (2003) there are common coping mechanisms for recreationists who do not achieve their desired recreation experience: change their behavior, attempt to change their environment, or change the way they evaluate the situation. Another way to look at it is acceptance, rationalization, product shift, and displacement (Hendricks, 1995). Rationalization, for example, requires the recreationist to reevaluate the situation in a positive light (Miller, 2003). At the extreme end is displacement where the recreationist chooses not to return to an area due to an unacceptable change in the social, managerial, or resource conditions and where a substitutable setting is also available (Hendricks, 1995).

Recent research in place attachment, or sense of place, shows that many people have a special emotional bond with places in which they live and recreate. As Brandenburg and Carroll (1995, 381) state, “natural resource managers are challenged as never before to meet the diverse needs, desires, and values of these stakeholders and are consistently amazed at how passionately many people feel about certain places.” Place attachment is the cultural bond that a person or group feels based on direct or indirect experience with a place (Tuan, 1977; Williams and Patterson, 1996; Eisenhauer, Krannich, and Blahna, 1999).

For many recreationists, specific places offer the opportunity to achieve the goals they have set for a certain recreation experience. According to Gibbons and Ruddell (1995, 173), “dependence on a particular setting for goal attainment creates stronger attachments than settings affording fewer opportunities for goal attainment.” Furthermore, the setting is not merely the physical landscape. The social environment and managerial actions influence the way in which the place is experienced by recreationists (Gibbons and Ruddell, 1995). Other physical settings may offer the opportunity to participate in the same activity (e.g., skiing or snowmobiling), but participants may have an attachment to a particular place that fulfills their goals and are less likely to accept an alternate setting as a substitute. Conflict, then, may be greater for recreationists who are more attached to a place than for those who do not rely on a specific setting for goal achievement (Gibbons and Ruddell, 1995).

### ***Quality Recreation Experience***

A “quality” winter recreation experience is a subjective assessment of the wants, needs, and desires of a specific user group. The definition of quality is different for motorized and non-motorized recreationists, and it often varies within user groups depending on what type of experience the user is seeking. For example, some cross-country skiers prefer groomed trails that form loops and are easily accessible by car. Others like remote

backcountry skiing experiences that require travel off trail and climbing to reach downhill telemarking opportunities.

The Routt Winter Task Force was established in 1999 to resolve issues associated with increasing winter recreation use on Rabbit Ears and Buffalo Pass. The purpose of the Winter Task force was to promote communication and consensus between various user groups and provide high quality recreation opportunities for all forest visitors. Goals included:

- Utilize limited recreation areas more effectively by encouraging better distribution/dispersal of winter users throughout the forest
- Provide appropriate proportions of high-quality motorized and non-motorized recreation settings, with reasonable access
- Maximize user awareness and compliance with winter recreation objectives and ethics

Providing for such diverse experiences is a challenge that federal land managers face. The goals developed by the Routt Winter Task Force recognized that winter recreationists want different opportunities, and that the area was large enough to accommodate all users. Nevertheless, the task force was not able to reach an agreement on the current suggested-use boundary. Task force meetings and comments from public scoping on the alternatives for winter recreation use on Rabbit Ears/Buffalo Pass show how these user groups define a quality recreation experience.

Non-motorized recreationists want areas that are free from the noise, smell, or sight of snowmobiles. These areas are non-motorized only and are also accessible by roads that are plowed in the winter. They also want areas where telemark skiers can make downhill turns that are not “highmarked” by snowmobiles. There are hills in the mixed use area that have traditionally been used by backcountry skiers, but recent advances in snowmobile technology have made them accessible to more powerful snowmobiles. Additionally, some non-motorized areas are too steep and treed for skiers to use and should not be considered quality non-motorized terrain. Motorized users are not interested in these areas for the same reason.

Motorized recreationists need more room (acres) because they can travel much farther than a skier in a day. In addition to groomed and marked snowmobile trails, open play areas and hills are important. Crowded parking lots along Highway 40 and at the Dry Lake Trailhead have led to the need for more parking, restrooms, and access for motorized use in these areas. Similarly, motorized use should be spread out to reduce crowding and conflicts among all users. Most of all, motorized opportunities should not be eliminated.

### Effects Common to All Alternatives

Shawn’s Trail, a non-motorized trail near Grizzly Parking Lot, would be designated non-motorized, with motorized restrictions in all alternatives. The Grizzly-Helena Road (NFSR 615) portion of the trail will not be designated non-motorized, to allow continued use of the Road by snowmobiles. This designation will not affect current uses.

A priority permit for the snowcat permittee, Blue Sky West, was issued in 2002. A description of BSW’s operations and conflicts associated with general public users can be

found in the EA for the Re-issuance of a special use permit to BSW (HPBE RD, Steamboat Springs). Any subsequent re-issuance will require a separate analysis. Specific trails and routes groomed by BSW have been at issue between BSW and other user groups. Specific trails and routes groomed by BSW will be determined as part of their special use authorization and annual operating plan and will not be a part of this decision.

### Effects of No Action on Recreation

Winter recreation use on Rabbit Ears/Buffalo Pass would continue to increase. The suggested use boundary would remain in place, but there would continue to be encroachment into the suggested non-motorized area by motorized users. Conflicts over use areas and who belongs where would also increase, resulting in some users being displaced to other areas of the forest or leaving the forest altogether.

#### ***Area surrounding Steamboat Springs Ski Area***

The suggested use boundary would include no motorized access to any part of the ski area. The boundary would be east of the ski area, just west of Long Park, and north to the South Fork of Fish Creek, continuing west/northwest to the North Fork of Fish Creek. The entire Hogan Park Trail from Highway 40 to the ski area would continue to be non-motorized. The southern portion of the Fish Creek drainage would be within the suggested non-motorized area.

Motorized use in the suggested non-motorized area surrounding the ski area would continue and would also increase as more and more users come to the area. There would be no way to enforce the suggested use boundary, and conflicts between motorized and non-motorized users would likely increase accordingly. Skiers and snowboarders in the ski area would be able to see and hear snowmobilers who access the open meadows east and north of the ski area.

Illegal motorized use inside the Steamboat Ski Area boundary would also continue. Violators who are caught would be ticketed.

#### ***Dry Lake***

Parking at Dry Lake Trailhead would continue to be a problem both for the Forest Service and for the Routt County Sheriff's Department. Poor parking lot design and inadequate space to accommodate users would continue to force users to park along the road inside and outside the Forest Boundary. Insufficient space to maneuver trailers would trigger safety concerns for vehicles and people, and increasing use would exacerbate the problem. Non-motorized users would still have to park among vehicles towing trailers for motorized users, contributing to the haphazardness of the parking lot.

The suggested non-motorized area north and east of the trailhead would remain the same. No new non-motorized trails would be designated. The non-motorized boundary would not be enforceable, however, and motorized users may access this area if conditions become crowded in other places. Non-motorized users would possibly hear and/or see motorized equipment being used outside the non-motorized use area.

The permitted snowcat operator would continue to stage out of the area, parking just inside the entrance to Dry Lake Campground. The permittee's equipment would be stored in this location throughout the winter. The permittee would continue to groom

trails for their snowcat skiing operation as allowed in their permit. The current permit will expire in 2007 and a separate analysis will be done for its renewal.

Use of the trails groomed by the permittee would continue by snowmobilers, hybrid skiers/ snowboarders, and other snowcats. Motorized users would be confined to designated routes only within the permitted snowcat operating area. However, some snowmobilers would continue to highmark on hills and slopes used by the snowcat skiing outfitter, private snowcat operators, and hybrid skiers/snowboarders for downhill turns and skiing. Conflicts over use areas and who belongs where would also increase, resulting in some users being displaced to other areas of the forest or leaving the forest altogether.

### ***Buffalo Pass***

Users would continue to access Buffalo Pass from the west at Dry Lake Trailhead, from the east at Grizzly Creek Trailhead, and from the south at trailheads along Highway 40. The Routt Powder Riders would continue to groom snowmobile trails along the Buffalo Pass Road.

There would be no restrictions on Fish Creek Lake or Long Lake. Water quality and the drinking water supply may be affected by snowmobiles crossing these lakes.

### ***Mt. Zirkel Wilderness***

Illegal snowmobile use in the Mt. Zirkel Wilderness would continue, especially in open areas near the wilderness boundary. There would be no transition terrain between the motorized area and the wilderness boundary. The wilderness boundary would continue to be marked and patrolled by Forest Service personnel, as resources allowed.

### ***Rabbit Ears Pass***

The suggested use boundary would continue to be east and north of the Hogan Park Trail north of Highway 40, and east of non-motorized trail 3C (including North Walton Peak) to the Sarvis Creek Wilderness boundary south of Highway 40. There would be four designated non-motorized and four designated motorized parking areas/trailhead along Highway 40. Overnight parking would be allowed at any trailhead, with most overnight parking occurring at motorized trailheads. Colorado DOT would continue to have problems plowing parking areas where people park RVs, trucks, and trailers overnight.

Conflicts would continue to occur between motorized and non-motorized users, particularly in the open areas west of the suggested-use boundary and around the North and South Walton Peak area. Motorized users would continue to ride in open areas and on hills within the suggested non-motorized area. Non-motorized users desiring telemarking opportunities within the mixed use area would share areas with snowmobilers who can also access these hills.

Routt Powder Riders and Steamboat Snowmobile Tours would continue to groom trails north and south of Highway 40. Steamboat Snowmobile Tours would continue to assist the Forest Service with set-up and take-down of boundary signs each season. Other permittees would operate in the area as their permits stipulate. Applications for new permits and uses would be analyzed on a case-by-case basis.

There would be no restrictions on use near the wildlife underpasses in the Muddy Pass area. Users would have access to Muddy Pass Lake and Baker Mountain.



## Effects of Alternative 1 - the Modified Proposed Action

Under Alternative 1, a Forest Order signed by the Medicine Bow-Routt Forest Supervisor would formalize the suggested use boundary for motorized and non-motorized use in the Rabbit Ears and Buffalo Pass areas. Some conflicts will be alleviated with the ability to enforce the motorized/non-motorized boundary; however, conflict will continue to occur where users choose to ignore the Forest Order. Non-motorized users will have formally designated areas where they can obtain solitude and a more primitive recreation experience without having to travel long distances into designated wilderness areas. Motorized users would have groomed trails and loop opportunities, as well as areas for open play.

### ***Area surrounding Steamboat Springs Ski Area***

The boundary would include no motorized access to any part of the ski area. The boundary would be the same as the current suggested use boundary: east of the ski area, just west of Long Park, and north to the South Fork of Fish Creek, continuing west/northwest to the North Fork of Fish Creek. The entire Hogan Park Trail from Highway 40 to the ski area would be non-motorized.

Motorized use around the ski area would decrease with formal boundaries and patrols by Forest Service personnel as resources allowed. A small percentage of motorized users would likely continue to access the open meadows east of the ski area, and some illegal use of the ski area and Mt. Werner would also continue. However, these instances would be greatly reduced with enforcement and adequate signing. Skiers and snowboarders in the ski area would see or hear snowmobiles on very rare occasions.

### ***Dry Lake***

Motorized and non-motorized users would still park in the same area, contributing to conflicts over parking availability and crowding. Motorized users pulling trailers would not have a designated area to park or turn their trailers around. Non-motorized users would continue to park their vehicles among those with trailers and they would have to unload in the same area as the snowmobiles. Users would also continue to park along the county road, blocking access to private driveways and making maneuvering difficult.

The non-motorized area northeast of the trailhead would remain the same, but the boundaries would be enforceable. No new non-motorized trails would be designated. Non-motorized users would have terrain outside the wilderness area that is close to town and easily accessible by regular passenger vehicles. Non-motorized users would possibly hear and/or see motorized equipment being used outside the non-motorized boundary.

The permitted snowcat operator would continue to stage out of the area, parking just inside the entrance to Dry Lake Campground. The permittee's equipment would be stored in this location throughout the winter. The permittee would continue to groom trails for their snowcat skiing operation as allowed in their permit. The current permit will expire in 2007 and a separate analysis will be done for its renewal.

Use of the trails groomed by the permittee would continue by snowmobilers and hybrid skiers/ snowboarders. Motorized users would be confined to designated routes only within the permitted snowcat operating area, reducing the number of snowmobile tracks on skiable terrain. However, some snowmobilers would continue to highmark on hills and slopes used by the snowcat skiing outfitter, private snowcat operators, and hybrid

skiers/snowboarders for downhill turns and skiing. Conflicts over use areas and who belongs where would also increase, resulting in some users being displaced to other areas of the forest or leaving the forest altogether.

### ***Buffalo Pass***

Users would continue to access Buffalo Pass from the west at Dry Lake Trailhead, from the east at Grizzly Creek Trailhead, and from the south at trailheads along Highway 40. The Routt Powder Riders would continue to groom snowmobile trails along the Buffalo Pass Road.

Mitigation measures to protect water quality and drinking water supplies on Fish Creek Reservoir and Long Lake would be put in to place (see Hydrology report on page \*\*). Motorized use on these reservoirs would be prohibited to prevent leaks and spillage from two and four stroke snowmobile engines. Some motorized users who like the open riding opportunities the reservoirs provide will be displaced. However, motorized users would still be allowed in all other areas of the municipal watersheds (MA 3.23) as well as on non-municipal lakes and reservoirs in the analysis area during the winter.

### ***Mt. Zirkel Wilderness***

Illegal snowmobile use in the Mt. Zirkel Wilderness would continue, especially in open areas near the wilderness boundary. There would be no transition terrain between the wilderness and motorized use. The wilderness boundary will continue to be marked and patrolled by Forest Service officials.

### ***Rabbit Ears Pass***

The formal boundary would be east and north of the Hogan Park Trail north of Highway 40, and east of non-motorized trail 3C (including North Walton Peak) to the Sarvis Creek Wilderness boundary south of Highway 40. There would be four designated non-motorized and four designated motorized parking areas/trailhead along Highway 40. Overnight parking would be allowed at any trailhead, with the most overnight parking occurring at motorized trailheads. Colorado DOT would continue to have problems plowing parking areas where people park RVs, trucks, and trailers overnight.

Conflicts between motorized and non-motorized users would decrease with increased Forest Service patrols and enforcement of the Forest Order. A small number of motorized users would likely continue to ride on open areas and on hills within the non-motorized area. Continued signing and education on the location of the motorized/non-motorized boundary would alleviate some illegal use. Non-motorized users desiring telemarking opportunities within the mixed use area would share areas with snowmobilers who can also access these hills. The buffer between motorized and non-motorized trails north of the highway would reduce the likelihood of seeing or hearing snowmachines from the designated non-motorized area. South of Highway 40, motorized trail 5A and non-motorized trail 3C (North Walton Peak) would be adjacent to each other and non-motorized users would still be able to hear and see snowmobiles.

Routt Powder Riders and Steamboat Snowmobile Tours would continue to groom trails north and south of Highway 40. Steamboat Snowmobile Tours would continue to assist the Forest Service with set-up and take-down of boundary signs each season. Other permittees would operate in the area as their permits stipulate. Applications for new permits and uses would be analyzed on a case-by-case basis.

There would be no restrictions on use near the wildlife underpasses in the Muddy Pass area. Users would have access to Muddy Pass Lake and Baker Mountain.

## Effects of Alternative 2 on Recreation

Alternative 2 increases the amount of acreage available for non-motorized winter recreation and formalizes these boundaries. User conflicts may decrease with the ability to enforce these boundaries; however, some motorized users would choose to ignore the boundaries, particularly in areas traditionally used by snowmobilers, and conflicts could increase. Motorized opportunities in open play areas would decrease.

### ***Area surrounding Steamboat Springs Ski Area***

The motorized boundary would be east of the ski area near the western end of Long Park, and the entire terrain north of the ski area to the snowcat operation area would be non-motorized. The area south of the ski area is reserved for deer and elk winter range. The Hogan Park Trail from Highway 40 to the ski area would be non-motorized.

Motorized use would likely decrease with formal boundaries and patrols by Forest Service personnel as resources allowed. Some motorized users would likely continue to access the open meadows east and north of the ski area, and some illegal use of the ski area and Mt. Werner would also continue. However, these instances would be greatly reduced with enforcement and signing. Skiers and snowboarders in the ski area would see or hear snowmobiles on very rare occasions.

### ***Dry Lake***

Motorized and non-motorized users would still park in the same area, but the amount of use at the parking lot would decrease with no motorized use of the snowcat operating area. Motorized users would be restricted to the groomed Buffalo Pass Road until they passed the permitted snowcat operating area. Only the snowcat permittee and non-motorized users could access this area.

The non-motorized area north and east of the trailhead would increase and include everything north of Buffalo Pass Road to the Wilderness boundary, and south to the Steamboat Ski Area. No new non-motorized trails would be designated. Non-motorized users would have extensive terrain outside the wilderness area that is close to town and easily accessible by regular passenger vehicles. There would be few instances of seeing or hearing motorized equipment except for the permitted snowcat operations and near the Buffalo Pass Road.

The permitted snowcat operator would continue to stage out of the area, parking just inside the entrance to Dry Lake Campground. The permittee's equipment would be stored in this location throughout the winter. The permittee would continue to groom trails for their snowcat skiing operation as allowed in their permit. The current permit will expire in 2007 and a separate analysis will be done for its renewal.

There would be no use of the trails groomed by the permittee by hybrid skiers/snowboarders or private snowcat operators. Motorized users would be confined to the Buffalo Pass Road for approximately \*\* miles. This would, however, confer exclusive use to the snowcat permittee, which is generally not permissible in either the Forest Plan or in Outfitter-Guide administration regulations (FSM 2347.03). Hybrid and private snowcat users would be displaced from this area. While they would still be able

to access Buffalo Pass and Rabbit Ears Pass, similar terrain suitable for motorized-assisted downhill skiing is not available in these areas, nor in any other areas in the vicinity.

### ***Buffalo Pass***

Users would continue to access Buffalo Pass from the west at Dry Lake Trailhead, from the east at Grizzly Creek Trailhead, and from the south at trailheads along Highway 40. Routt Powder Riders would continue to groom snowmobile trails along the Buffalo Pass Road. The boundary would follow the northern edge of the Buffalo Pass Road to Summit Lake Campground. Motorized users would not be able to access the terrain immediately north of the Buffalo Pass Road on the west side of the pass.

Mitigation measures to protect water quality and drinking water supplies on Fish Creek Reservoir and Long Lake would be put in to place (see Hydrology report on page \*\*). Motorized use on these reservoirs would be prohibited to prevent leaks and spillage from two and four stroke snowmobile engines. Some motorized users who like the open riding opportunities the reservoirs provide will be displaced. Motorized users would still be allowed in all other areas of the municipal watersheds (MA 3.23) as well as on non-municipal lakes and reservoirs in the analysis area during the winter.

### ***Mt. Zirkel Wilderness***

Illegal use of the wilderness would decrease with the non-motorized boundary adjacent to and north of the Buffalo Pass Road. Signing along the non-motorized boundary at Buffalo Pass Road would reduce the amount of motorized use between the road and the wilderness boundary. However, some motorized users would continue to access this area and illegally enter the wilderness. Both the wilderness boundary and non-motorized boundary would be marked and patrolled by Forest Service personnel, increasing the costs of time, equipment, and personnel needed to maintain and patrol two boundaries. This would provide a buffer between the wilderness and non-motorized area and motorized use south of Buffalo Pass.

### ***Rabbit Ears Pass***

The formal boundary would be adjacent to motorized trail 1A north of Highway 40 and motorized trail 5A south of Highway 40. Both North and South Walton Peaks would be within the non-motorized boundary. Signing of the boundary would be adjacent to existing snowmobile trails, allowing motorized users to easily see the boundary. It would also create a large buffer zone between motorized and non-motorized uses, reducing the conflict to non-motorized users who do not want to hear snowmobiles. However, access to open meadows and play areas for motorized users will be significantly reduced and may result in a backlash of illegal use in the non-motorized area. Although visible, the boundary would be difficult to enforce unless patrols are constant.

There would be four designated non-motorized and four designated motorized parking areas/trailhead along Highway 40. Overnight parking would be allowed at any trailhead, with the most overnight parking occurring by motorized users. Colorado DOT would continue to have problems plowing parking areas where people park RVs, trucks, and trailers overnight.

Conflicts between motorized and non-motorized users would decrease with Forest Service patrols and enforcement of the Forest Order as resources allowed. The costs to

enforce the boundary would likely increase since more law enforcement presence would be necessary. Continued signing and education on the location of the motorized/non-motorized boundary would alleviate some illegal use, but motorized users would resist the loss of open terrain west of the boundary. Telemarking opportunities would increase for non-motorized users. A large buffer between the motorized and popular non-motorized ski trails would reduce the likelihood of seeing or hearing snowmobiles from the non-motorized area north of the highway. South of Highway 40, motorized trail 5A and non-motorized trail 3C (North Walton Peak) would be adjacent to each other and non-motorized users would still be able to hear and see snowmobiles.

Routt Powder Riders and Steamboat Snowmobile Tours would continue to groom trails north and south of Highway 40. Steamboat Snowmobile Tours would continue to assist the Forest Service with set-up and take-down of boundary signs each season. All groomed motorized trails would stay the same north of the highway, but Steamboat Snowmobile Tours would no longer have access to South Walton Peak. Other permittees would operate in the area as their permit stipulates. Applications for new permits and uses would be analyzed on a case-by-case basis.

All winter recreation use would be prohibited in 4,163 acres to protect lynx habitat and linkage zones on Muddy Pass. The closure area would extend north from Highway 40 just east of motorized trail 1F to the forest boundary, and south to Lake Agnes (private property) and along the eastern forest boundary. Although currently low, motorized use near Muddy Lake and east of trail 1F would no longer occur. Traditional non-motorized use in the Baker Mountain area would no longer be allowed. Activities displaced from these areas would move to other areas, potentially increasing use and conflicts in already heavily used areas. Permitted non-motorized outfitter-guide activities on Baker Mountain would have to be relocated.

### Effects of Alternative 3 on Recreation

Alternative 3 increases the motorized/mixed use area and formalizes these boundaries. Non-motorized users would still have separate areas on the west side of Rabbit Ears Pass, north of the Steamboat ski area, and north and east of the Dry Lake Trailhead, but part of the Hogan Park Trail and the area east of the ski area would be open to all users. Motorized use would be dispersed across the Rabbit Ears/Buffalo Pass area, providing increased opportunities for cross-country travel and snow play. However, this would adversely affect the non-motorized users desire for quiet skiing areas where motorized equipment is not heard, seen, or smelled.

#### ***Area surrounding Steamboat Springs Ski Area***

Motorized access would be allowed to the eastern ski area boundary. The area north of the ski area to Fish Creek would be non-motorized. The area south of the ski area is reserved for deer and elk winter range. The northern part of the Hogan Park Trail would be in the mixed use area which would increase conflicts with non-motorized users using the trail to access the ski area.

Motorized use near the ski area would increase. Skiers and snowboarders in the ski area would see or hear snowmobiles and tracks regularly. Motorized users would be sharing the same south slopes as backcountry skiers all the way up to the edge of the Morningside Park trails. The ridge to the ski area boundary would be open to motorized use, which

would likely increase illegal motorized access to the high points (communication site, Mt. Werner) within the ski area boundary. Both backcountry skiers and ski area users would be adversely affected by the motorized use within sight and sound of the ski area.

### ***Dry Lake***

Heavy use at the Dry Lake Trailhead would continue to occur, and may increase with no use restrictions in the area (see below). A redesign of the parking lot would help alleviate the safety, illegal parking, and inadequate capacity concerns. Potential separation of motorized and non-motorized parking would help alleviate conflicts over parking. Non-motorized users would be able to unload their vehicles away from the sound and smell of motorized snowmachines.

The non-motorized area north and east of the trailhead would remain the same. No new non-motorized trails would be designated. Non-motorized users would have terrain outside the wilderness area that is close to town and easily accessible by regular passenger vehicles. Non-motorized users may be able to see and hear motorized equipment being used outside the non-motorized use area.

The permitted snowcat operator would continue to stage out of the area, parking just inside the entrance to Dry Lake Campground. The permittee's equipment would be stored in this location throughout the winter. The permittee would continue to groom trails for their snowcat skiing operation as allowed in their permit. The current permit will expire in 2007 and a separate analysis will be done for its renewal.

Use of the trails groomed by the permittee would continue by snowmobilers and hybrid skiers/ snowboarders. Motorized users would be able to ride within the permitted snowcat operating area with no restrictions. Some snowmobilers would continue to highmark on hills and slopes used by the snowcat skiing outfitter, private snowcat operators, and hybrid skiers/snowboarders for downhill turns and skiing. Safety concerns would increase with more motorized users accessing the same slopes that skiers, hybrids, and snowcats use. Conflicts over use areas and who belongs where would also increase, resulting in some users being displaced to other areas of the forest or leaving the forest altogether. The safety of both motorized and non-motorized users would be affected by the increase in motorized users on and off trails.

### ***Buffalo Pass***

Users would continue to access Buffalo Pass from the west at Dry Lake Trailhead, from the east at Grizzly Creek Trailhead, and from the south at trailheads along Highway 40. The Routt Powder Riders would continue to groom snowmobile trails along the Buffalo Pass Road. There would be no transition terrain between the wilderness and Buffalo Pass Road.

There would be no restrictions on Fish Creek Lake or Long Lake. Water quality and the drinking water supply may be affected by snowmobiles on these lakes.

### ***Mt. Zirkel Wilderness***

Illegal snowmobile use in the Mt. Zirkel Wilderness could continue, especially in open areas near the wilderness boundary. Motorized use in the wilderness may increase with increased use from Dry Lake Trailhead. There would be no transition terrain between the

wilderness and the motorized use area. The wilderness boundary will continue to be marked and patrolled by Forest Service officials.

### ***Rabbit Ears Pass***

The formal boundary would be adjacent to the ski area and west to Fishhook Creek, then east of the Hogan Park Trail to Highway 40. South of Highway 40, the boundary would be east of non-motorized trail 3C (including North Walton Peak) to the Sarvis Creek Wilderness boundary. There would be three designated non-motorized, four designated motorized parking areas, and one mixed use parking area along Highway 40.

The trailhead at Walton Creek would convert to mixed use and a connector trail would be created between Walton Creek and the existing motorized trail system. Additional motorized parking is proposed for locations south of Hwy 40, across from Muddy Creek and Dumont Trailheads. This would help facilitate current users with room for additional motorized use. Current users parking illegally along the highway would have opportunities in designated parking areas.

Conflicts between motorized and non-motorized users would likely increase at this parking area. Non-motorized users who want to access Hogan Park Trail and North Walton Peak Trail may be displaced to other parking areas, if overcrowding conditions occur in this mixed use trailhead. Overnight parking would be allowed at Old Columbine or Muddy Creek Trailheads (depending on further site-specific reconnaissance).

Conflicts between motorized and non-motorized users would decrease with Forest Service patrols and enforcement of the Forest Order as resources allowed.. Increased acreage for mixed use would likely reduce motorized encroachment into non-motorized areas. Continued signing and education on the location of the motorized/non-motorized boundary would also alleviate some illegal use. Non-motorized users desiring telemarking opportunities within the mixed use area would share areas with snowmobilers who can also access these hills. There would be a buffer between motorized and non-motorized uses on part of the Hogan Park Trail; however, non-motorized users desiring quiet and solitude would be displaced from approximately half of that trail as well as the area along the eastern edge of the Steamboat Ski Area. South of Highway 40, motorized trail 5A and non-motorized trail 3C (North Walton Peak) would be adjacent to each other and non-motorized users would still be able to hear and see snowmobiles.

Routt Powder Riders and Steamboat Snowmobile Tours would continue to groom trails north and south of Highway 40. Steamboat Snowmobile Tours would continue to assist the Forest Service with set-up and take-down of boundary signs each season. Other permittees would operate in the area as their permit stipulates. Applications for new permits and uses would be analyzed on a case-by-case basis.

All winter recreation use would be prohibited in 391 acres to protect lynx habitat and linkage zones on Muddy Pass. The closure area would encompass the terrain on both sides of Highway 40 surrounding the lynx underpasses, including Muddy Pass Lake north of the highway and the north side of Baker Mountain south of the highway. Although use in this area is currently light, users would no longer be able to access Muddy Pass Lake and would be restricted from Old Columbine Trailhead and along the east side of Trail 5A until they were past the closure area. Non-motorized users and permittees

would still be able to access the west and south aspects of Baker Mountain where they have traditionally skied.

### Effects of Alternative 4 on Recreation

Alternative 4 was developed in response to concerns that simply formalizing the suggested use boundary does not address users' concerns. It is very similar to Alternative 1, but it incorporates actions to further reduce conflicts and providing access to both motorized and non-motorized users.

#### ***Area surrounding Steamboat Springs Ski Area***

The boundary would include non-motorized use adjacent to the ski area. The boundary would be east of the ski area and the Hogan Park Trail, but west of the existing suggested use boundary. The mixed use area would include the open area northeast of the ski area. Motorized access to the route north from the saddle and through the bog and up to the prominent open knob to the east of the ski area would be available. This would also provide snowmobilers with a loop and view opportunity from the east off of groomed and marked trails. However, there will likely be unauthorized snowmobile use on the slopes east of the ski area and the northern part of the Hogan Park Trail. The area south of the ski area is reserved for deer and elk winter range. Skiers and snowboarders in the ski area would see or hear snowmobiles from the top of Mt. Werner.

#### ***Dry Lake***

Heavy use at the Dry Lake Trailhead would continue to occur, but a redesign of the parking lot would help alleviate the safety, illegal parking, and inadequate capacity concerns. The separation of motorized and non-motorized parking would also help alleviate safety concerns. Non-motorized users would be able to unload their vehicles away from the sound and smell of motorized snowmachines.

The non-motorized area north and east of the trailhead would remain the same. No new non-motorized trails would be designated. Non-motorized users would have terrain outside the wilderness area that is close to town and easily accessible by regular passenger vehicles. Non-motorized users would occasionally hear and/or see motorized equipment being used outside the non-motorized boundary.

The permitted snowcat operator would continue to stage out of the area, parking just inside the entrance to Dry Lake Campground. The permittee's equipment would be stored in this location throughout the winter. The permittee would continue to groom trails for their snowcat skiing operation as allowed in their permit. The current permit will expire in 2007 and a separate analysis will be done for its renewal.

Use of the trails groomed by the permittee would continue by snowmobilers and hybrid skiers/ snowboarders. Motorized users would be confined to designated routes only within the permitted snowcat operating area, reducing conflicts among hybrid/snowcat skiers and traditional snowmobile users. However, some snowmobilers may continue to highmark on hills and slopes used by the snowcat skiing outfitter, private snowcat operators, and hybrid skiers/snowboarders for downhill turns and skiing. Conflicts over who has the right to use this terrain would continue.



### ***Buffalo Pass***

Users would continue to access Buffalo Pass from the west at Dry Lake Trailhead, from the east at Grizzly Creek Trailhead, and from the south at trailheads along Highway 40. The Routt Powder Riders would continue to groom snowmobile trails along the Buffalo Pass Road.

Mitigation measures to protect water quality and drinking water supplies on Fish Creek Reservoir and Long Lake would be put in to place (see Hydrology report on [page \\*\\*](#)). Motorized use on these reservoirs would be prohibited to prevent leaks and spillage from two and four stroke snowmobile engines. Some motorized users who like the open riding opportunities the reservoirs provide will be displaced. Motorized users would still be allowed in all other areas of the municipal watersheds (MA 3.23) as well as on non-municipal lakes and reservoirs in the analysis area during the winter.

### ***Mt. Zirkel Wilderness***

Illegal snowmobile use in the Mt. Zirkel Wilderness would continue, especially in open areas near the wilderness boundary. The wilderness boundary will continue to be marked and patrolled by Forest Service officials. There would be no transition terrain between the wilderness and motorized use area.

### ***Rabbit Ears Pass***

The formal boundary would be east and north of the Hogan Park Trail north of Highway 40, and east of non-motorized trail 3C (including North Walton Peak) to the Sarvis Creek Wilderness boundary south of Highway 40. There would be four designated non-motorized and four designated motorized parking areas/trailheads along Highway 40. An additional motorized parking area would be designated on the south side of Highway 40 to alleviate crowding at existing parking areas and decrease illegal parking along the highway. However, this may also increase use in an area that is already heavily used. Any new parking area would be designed to minimize scenic impact and maintain the scenic integrity of the Rabbit Ears corridor. New toilet facilities at existing or new parking areas would be located to blend in with and be subordinate to the natural environment.

Overnight parking would be designated at Old Columbine or Muddy Creek trailheads, alleviating Colorado DOT snowplowing concerns. It would also consolidate overnight parking in one area and reduce impacts (i.e., sanitation, trash) from overnight parking. This would allow plowing at all other parking areas which would provide more available parking spaces for day users.

Conflicts between motorized and non-motorized users would decrease with Forest Service patrols and enforcement of the Forest Order as resources allowed. A small number of motorized users would likely continue to ride on open areas and on hills within the non-motorized area. Continued signing and education on the location of the motorized/non-motorized boundary would alleviate some illegal use. Non-motorized users desiring telemarking opportunities within the mixed use area would share areas with snowmobilers who can also access these hills. The buffer between motorized and non-motorized trails north of the highway would reduce the likelihood of seeing or hearing snowmachines from the designated non-motorized area. South of Highway 40,

motorized trail 5A and non-motorized trail 3C (North Walton Peak) would be adjacent to each other and non-motorized users would still be able to hear and see snowmobiles.

Routt Powder Riders and Steamboat Snowmobile Tours would continue to groom trails north and south of Highway 40. Steamboat Snowmobile Tours would continue to assist the Forest Service with set-up and take-down of boundary signs each season. Other permittees would operate in the area as their permit stipulates. Applications for new permits and uses would be analyzed on a case-by-case basis.

All winter recreation use would be prohibited in 1,649 acres to protect lynx habitat and linkage zones on Muddy Pass. The closure area would extend north from Highway 40 just east of motorized trail 1F for approximately two miles, then east to the forest boundary, south along the forest boundary across Muddy Pass, and west along a ridge to the Old Columbine Trailhead. Although use in this area is currently light, users would not have the opportunity to access the area around Muddy Lake and would have to stay on the west side of Trail 1F until they got north of the closure area. Users would also be restricted from Old Columbine Trailhead and along the east side of Trail 5A until they were past the closure area. Non-motorized users and permittees would still be able to access the west and south aspects of Baker Mountain where they have traditionally skied.

## **Transportation**

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### Existing Condition

The main areas of this analysis that deal with parking are the Buffalo Pass, Dry Lake and Rabbit Ears Pass, U. S. Highway 40 areas.

#### ***Buffalo Pass***

Buffalo Pass Road (County Road 38) is north of Steamboat Springs east of via County Road 36. The County maintains the road to the gate just past Dry Lake Campground and plows the parking lot under an agreement with the Forest Service.

To accommodate trucks and cars at Dry Lake a 100' x 100' parking area was constructed and surfaced with aggregate, in June of 1992. This is also a trailhead for the Spring Creek Trail (1160). During the analysis of the parking lot in 1992, the Forest Service considered the land south of Dry Lake approximately one mile on the eastside of the road for additional parking. This was dismissed because of right-of-way and illegal travel concerns. The County widened the road on the north side, near the Dry Lake Campground to accommodate more vehicles. The vehicle parking capacity is approximately 40 depending on vehicle and trailers used. The winter recreation activities and user groups have increased in the past years to a point that parking during peak use are congested, exceeds capacity and difficult to plow snow.

#### ***Rabbit Ears Pass (Hwy 40)***

Highway 40 has eight parking areas from milepost 146 to 156. The parking lots accommodate from 20 to 50 parking spaces depending on the types of vehicle and trailers.

Colorado Department of Transportation (CDOT) maintains the parking areas after U. S. Highway 40 is plowed and safe to travel. The parking areas have adequate sight distance

for merging traffic onto the highway. The parking areas where the public tend to cross the highway are as follows; Cross-country skiers cross Highway 40 at the Walton Creek parking area to access the Hogan Park trail. Snowmobiles and Cross-country skiers also cross Highway 40 at the Dumont and Muddy Creek parking areas to access varying terrain on the south side of the road. During peak use periods, particular parking areas are congested and difficult to plow snow.

Grizzly Creek parking area that is located on the eastside of Buffalo Pass typically receives less snow than Rabbit Ears and also tends to melt sooner. In the spring the users from Grizzly Creek will utilize Rabbit Ears parking area, which increases the use. Another factor that has an effect on the parking on Rabbit Ears is overnight parking is becoming more popular at Dumont, Muddy Creek and Old Columbine parking areas, this makes maneuvering of snowplows more difficult for CDOT.

### Effects Common to all Alternatives

Routt County and CDOT provide a valuable recreational service to the Forest Service and the public by maintaining the parking areas. All alternatives are subject to appropriated funding.

### Effects of No Action on Engineering

There would be no effect on engineering as a result of this alternative.

### Effects of Alternative 1 and Alternative 2 on Engineering

These alternatives would be the same as existing conditions.

### Effects of Alternative 3 and Alternative 4 on engineering

These alternatives would look at opportunities to better facilitate the parking at Dry Lake, Walton Creek and overnight parking on Highway 40.

## **Cultural Resources** ---

### Existing Condition

Most of the proposed activities under the four action alternatives will be implemented on snow and will therefore have no potential to effect cultural resources. However, parking lot improvements and the possible future installation of toilets may incur ground disturbance and may therefore require cultural resource clearance under the implementing regulations of Section 106 of the National Historic Preservation Act (36 CFR 800). One eligible site occurs in an area of a proposed parking lot south of Highway 40 at the intersection of FDR 100, the Buffalo Park Road.

### Effects Common to all Alternatives

Increased project activity will probably not increase the potential for site vandalism and collection as most sites are covered and protected by a deep layer of snow in the winter. However, increased numbers of winter recreationists may displace some user groups into

areas with historic resources, such as historic cabins that may be exposed above the snow, resulting in a possible increase in collection, vandalism, damage or destruction. This possibility is slight, but is applicable to all four alternatives. The discovery and education stipulation when placed in contracts and permits for outfitters and guides may reduce these potential indirect effects.

### Effects of No Action on Cultural Resources

If there is no federal action, then there is no undertaking, as defined in 36 CFR 800.2(o), for Section 106 of the National Historic Preservation Act (16 U.S.C. 470f). The no action alternative has no potential to affect cultural resources. Therefore the determination for the proposed action is “no historic properties affected”.

### Effects of Alternative 1 on Cultural Resources

This alternative does not entail any proposed ground disturbing activities, and as such, it is not an undertaking as defined in 36 CFR 800.2(o), for Section 106 of the National Historic Preservation Act (16 U.S.C. 470f). The determination for the proposed action is “no historic properties affected”.

### Effects of Alternative 2 on Cultural Resources

This alternative does not entail any proposed ground disturbing activities, and as such, it is not an undertaking as defined in 36 CFR 800.2(o), for Section 106 of the National Historic Preservation Act (16 U.S.C. 470f). The determination for the proposed action is “no historic properties affected”.

### Effects of Alternative 3 on Cultural Resources

This alternative has the potential to affect cultural resources due to ground disturbing development that is proposed. Under this alternative, a parking lot redesign is proposed for the Dry Lake Parking Lot. Depending on the scope of previous cultural resource surveys, these undertakings may require cultural resource clearance under the implementing regulations of Section 106 of the National Historic Preservation Act (36 CFR 800).

### Effects of Alternative 4 on Cultural Resources

This alternative has the potential to affect cultural resources due to the amount of ground disturbing development that is proposed. A parking lot redesign is proposed for the Dry Lake Parking Area and new parking lots are proposed across Highway 40 from the current Dumont Parking area and the Muddy Creek Parking Area. Depending on the scope of previous cultural resource surveys, these undertakings may require cultural resource clearance under the implementing regulations of Section 106 of the National Historic Preservation Act (36 CFR 800). There is a significant concern in the area of the proposed parking lot across Highway 40 from Muddy Creek Parking Lot at the intersection of FDR 100; the Buffalo Park Road. If the area is eventually slotted for future development, and avoidance is not possible, the project would require significant mitigation measures.

## Social and Economic Considerations

### Existing Condition

Recreation on public land in the study area has economic impacts on the businesses in the local communities around Steamboat Springs, Walden, and Kremmling. Local outdoor-recreation equipment and clothing shops, hotels, restaurants, lodges, and outfitter-guides directly benefit from spending by recreation visitors. Table 1 highlights the basic industries for each of the three counties in the study area, Routt, Jackson, and Grand.

**Table 2 - Basic Industry Jobs and Income by County, 2002**

Basic Industry Groups	Routt County		Jackson County		Grand County	
	Number of Jobs	Income, \$1,000	Number of Jobs	Income, \$1,000	Number of Jobs	Income, \$1,000
Agribusiness	846	(\$6,869)	310	(\$8,025)	294	(\$7,355)
Mining	531	\$38,491	8	\$225	0	\$30
Manufacturing	190	\$6,486	4	\$18	86	\$2,425
Regional Center/National Services	1,300	\$55,240	15	\$629	261	\$11,132
Communications	9	\$596	0	\$0	3	\$208
Construction	679	\$24,515	15	\$622	127	\$5,402
Finance, Insurance and Real Estate	33	\$1,672	0	\$0	36	\$1,587
Trade and Transportation	117	\$8,328	0	\$0	33	\$2,205
Professional and Business Services	211	\$10,716	0	\$6	43	\$1,168
Private Education and Health Services	251	\$9,413	0	\$0	19	\$563
Tourism	6,279	\$183,827	74	\$474	4,185	\$106,797
Resorts	3,895	\$93,846	51	(\$300)	2,560	\$54,738
Second Homes	1,588	\$69,897	15	\$597	1,153	\$40,874
Tourist Services	586	\$13,795	2	\$25	395	\$9,317
Tourism Transportation	210	\$6,288	7	\$153	77	\$1,867
Government	83	\$6,090	31	\$1,769	205	\$10,251
Indirect: unassigned	1,324	\$60,378	104	\$2,918	445	\$17,288
Households	1,880	\$63,942	238	\$6,271	1,248	\$37,479
Retirees	1,478	\$50,287	138	\$3,646	715	\$21,482
Commuters	-284	(\$9,658)	9	\$233	70	\$2,113
Households w/public assistance \$ <sup>1</sup>	84	\$2,843	24	\$628	89	\$2,660
Households w/divid,	602	\$20,471	67	\$1,765	374	\$11,223

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Basic Industry Groups	Routt County		Jackson County		Grand County	
	Number of Jobs	Income, \$1,000	Number of Jobs	Income, \$1,000	Number of Jobs	Income, \$1,000
interest & rent \$ <sup>1</sup>						
Worker Local Res. Services	5,337	\$181,535	66	\$1,742	1,900	\$57,060
Total All Industries	17,790	\$531,099	856	\$8,555	8,640	\$225,831
Total Personal Income		\$772,586		\$24,208		\$342,704

Source: Colorado Demography Department, 2004.

1 excluding retirees

Agribusiness: Activities related to agriculture including agricultural production, agricultural inputs, and agricultural processing.

Agricultural production: raising crops and livestock for sale.

Agricultural inputs: goods and services that enable production, such as farm equipment manufacture and sales, fertilizer production, or the sale of seeds and feed grains.

Agricultural processing: activities that add value to agricultural products and readies them for market, including milling, transportation to market, brewing, curing, packing, food manufacturing or otherwise creating a finished food product.

Mining: Includes all of mine operation and mining support activities. Mine operations includes establishments operating mines, quarries, or oil and gas wells. Mining support activities include establishments that perform exploration and/or other mining activities.

Manufacturing: Manufacturing includes all activities that can be classified under manufacturing except for food and kindred product manufacturing which is included in agribusiness.

Regional Center/National Services: Includes all establishments primarily engaged in providing services to a region (a group of counties) or the nation. Examples include health services in the Eastern Plains or Western Slope or Denver International Airport in the Front Range.

Tourism: Includes all establishments with activities related to tourism. Examples include activities at resorts, second homes, tourist services, and tourist transportation.

Government: Includes all government owned establishments regardless of activity.

Indirect unassigned: An establishment is assigned as having indirect employment and earnings when a base industry purchases local supplies or services for the operation of their business from it. The distinction between direct and indirect basic is obvious in some cases, but imprecise in many others. Where a distinction could be made, we assigned the indirect to the basic industry, combining both direct and indirect employment. Where a distinction could not be made, but it was obvious that the establishment was serving a base industry, the employment and earnings were assigned here.

Households: Retirees – Earnings and employment associated with expenditures made by retirees on local resident services. Retiree income includes transfer payments from the federal government to individuals over age 60 and dividends, interest, and rental income also earned by individuals over age 60. These consist primarily of retirement and disability insurance benefit payments, income maintenance, and Veterans payments.

Households: Commuters – These data are the earnings and employment associated with expenditures made by households who earned their income outside of their county of residence, but who made local resident service purchases with those outside dollars in their county of residence. This source of income is significant for counties within metropolitan areas and for counties which serve as bedroom communities for several of the ski resorts.

Households: With Public Assistance Income – These data are the earnings and employment within local resident service sectors associated with expenditures made by households who earned their income from public assistance payments made by the federal government. Such payments include food stamps, SSI, AFDC, etc. These data exclude Retirees earnings.

Households: With Dividends, Interest, and Rental Income – These data are the earnings and employment within local resident service industries, which are the result of local expenditures of dividends, interest, and rental income.

Tourism activity in Routt County accounts for about 50 percent of basic industry jobs, and 45 percent of income. This includes resorts, second homes, tourism services, and tourism transportation. Resorts and second homes make up the majority of the activity. In Grand County, the percent of basic industries related to tourism is 62 percent of employment and almost 60 percent of income. The majority of this activity is focused around Winter Park and the resorts. Jackson County has only nine percent of total employment in the tourism industry. The activity also accounts for a small proportion of the total income within the county.

Table 2 displays the average wage by basic industry for each of the Counties. All counties show a negative wage for agricultural over the 2002-year; this is likely due to drought conditions and agricultural market conditions. In general, the wages in Routt County are higher than those in the same industry for Jackson and Grand counties. Because of the many part time and seasonal positions associated with the tourism industry, the average wages are generally lower than other sectors. Jackson County wage for tourism is significantly lower than Routt and Grand, likely due to limited facilitates and year round activity.

**Table 3 - Average wage for industry groups by county, 2002**

	<b>Routt County</b>	<b>Jackson County</b>	<b>Grand County</b>
Basic Industry Groups	Average Wage		
Agribusiness	\$(8,117)	\$(25,910)	\$(25,023)
Mining	\$72,480	\$28,774	---
Manufacturing	\$34,214	\$4,500	\$28,234
Regional Center / National Services	\$42,508	\$42,506	\$42,678
Tourism	\$29,277	\$6,393	\$25,516
Government	\$73,215	\$57,472	\$49,962
Indirect: unassigned	\$45,596	\$28,185	\$38,872
Households	\$34,017	\$26,369	\$30,033

Source: Colorado Demography Department, 2004.

There are about 10 outfitter-guides with authorization for commercial uses in the study area that include: winter lodging and equipment rentals, snowmobile tours, snow cat ski tours, Nordic ski tours, snowshoeing and ice climbing. These outfitter-guides fulfill a demand for their services by providing an outdoor experience for the public to enjoy. For more information about the recreational use and trends in the study area, please refer to the recreation analysis in this document.

The following analysis specifically addresses concerns of the Blue Sky West snowcat operation. Changes to other uses of their operating area vary by alternative and address their concerns to different degrees. For additional information about the Blue Sky West operation, please see the environment assessment (EA) 'Re-issuance of a Special Use Permit to Blue Sky West' (Forest Service, 2002).

Blue Sky West (BSW) offers snowcat skiing for clients interested in a backcountry experience. Their permit allows them commercial access to the Forest, but not exclusive use of their permitted snowcat area. Blue Sky West grooms the routes set by the Forest Service, allowing their clients access to the backcountry, but in doing so, the groomed

routes can be used by anyone interested in accessing the area. Conflicts arise when commercial and non-commercial users are interested in skiing the same area. Blue Sky West is interested in having access to their permitted area limited so they can offer their clients a quality recreation experience. While exclusive use is not possible, each alternative addresses the issue of economic viability, raised by BSW, to different degrees.

### Effects Common to all Alternatives

All action alternatives will alter the mix and access for motorized and non motorized users, and will create some need for outfitter-guide operations to adapt their current practices to meet the requirements of any alternative. It is not expected that total use numbers will decline under any alternative. Currently, demand for recreation in the area is greater than capacity, so it is highly unlikely that use would drop with implementation of any alternative. User types and patterns of use may change, but total use will continue to increase as general trends in recreation increase. Some users may find substitute sites if an alternative does not allow them the access or opportunity they desire, but with the trend of increasing use, more people will enter the area than would leave the area.

Under all four alternatives, surrounding communities will continue to benefit economically. Winter recreation, both motorized and non-motorized, brings dollars to these communities in the form of equipment purchases, rentals, and services (hotels, restaurants, gas, etc.). There is no change in use numbers expected, so contributions to the local economies would be similar to current situations under all alternatives.

### Effects of No Action Alternative on Economics

The no action alternative suggests mixed-use access into and through the permitted snowcat area on designated routes only. However, suggested use is not enforceable. BSW would continue to be frustrated with increasing motorized use along routes, motorized users intentionally high-marking hillsides within the operating area and private snowcats slowing operating times.

### Effects of Alternative 1 on Economics

Alternative 1 creates a closure to motorized use in the operating area, with the exception of designated routes. This closure would be enforceable, reducing the occurrence of motorized use on skiable terrain within BSW operating area.

### Effects of Alternative 2 on Economics

Alternative 2 provides the most protection for the commercial venture, limiting use in a portion of the snowcat permitted area to non-motorized users, but allowing only motorized access for the permitted snowcats. This still leaves the area open to anyone wanting to gain access for skiing or snowshoes, it only limits motorized users access to the area, restricting them to designated routes.

Alternative 2 also regulates motorized use in the snow cat permitted area to designated routes. In addition, the permitted snowcat area by Dry Lake, extending east to Buffalo Pass, and including the are north of Buffalo Pass Road to the wilderness boundary, would be designated non-motorized, allowing only permitted snowcat use on specific



routes/areas described in the BSW permit. This alternative further addresses the separation of commercial use by allowing only the permitted snowcat access to a portion of the permitted area. The lower part of the snowcat permitted area would be motorized use, route only.

This alternative would limit opportunities for hybrid skiers and private snowcat operators who use this terrain. There are no substitutable areas for these specific uses in the analysis area or in the immediate vicinity of Steamboat Springs. These users would be displaced and hybrid/private snowcat opportunities lost.

### Effects of Alternative 3 on Economics

Alternative 3 would create the most difficulty for Blue Sky West's commercial operation. Under this alternative, the entire snowcat permitted area is designated as mixed-use, with no route restrictions. Blue Sky West will be permitted to continue operation under all alternatives, but they will have a difficult time maintaining a quality experience for their clients under alternative 3. As use of the area increases and desire for motorized terrain increases, the quality of the commercial operation will decline.

### Effects of Alternative 4 on Economics

Alternative 4 offers the same route only designation within the snowcat permitted area as alternative 1. Effects would be the same as in Alternative 1.

Existing Condition

## **Wildlife and Management Indicator Species** \_\_\_\_\_

### Description Of Management Indicator Species (MIS)

Under the Routt Forest Plan, Management Indicator Species (MIS) were selected because their population changes are believed to indicate the effects of management activities, as required by the National Forest Management Act regulations (36 CFR 219.19(a)(1)). At the project level, management indicators are selected that best represent the issues, concerns and opportunities of the project (FSM 2621.1). Forest Plan MIS were reviewed to determine which are likely to be present in the project area, and to identify those likely to be affected by the project (FSM 2620.45 and 2621.1). The rationale, assumptions, and procedures used in selecting MIS for this project are documented in the following table, as required by FSM 2621.1(4).

**Table 4 -Management Indicator Species of the Routt National Forest**

<b>Common Name of MIS</b>	<b>Habitat</b>	<b>Rationale for selection or non-selection as MIS for this project</b>	<b>Analyzed as MIS for Project</b>
Common Flicker	This species was selected as a MIS for the Routt National Forest to represent habitat complexes associated with snags and downed woody	Common flicker is absent during the winter season and its habitat will not be impacted by the project so it	NO

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<b>Common Name of MIS</b>	<b>Habitat</b>	<b>Rationale for selection or non-selection as MIS for this project</b>	<b>Analyzed as MIS for Project</b>
	debris.	is not an indicator of impacts that may be associated with winter recreation	
Hairy Woodpecker	The hairy woodpecker was selected as an MIS to represent habitat complexes associated with snags and downed woody debris as well as aspen habitats.	Because impacts to snags aren't associated with winter recreation, the hairy woodpecker will not be selected for this analysis.	NO
Red-backed Vole	The red-backed vole represents habitat complexes associated with snags and downed woody debris as well as lodgepole pine habitats.	Management actions associated with winter recreation will not affect snags and/or downed woody debris; subsequently red-backed vole habitat should not be affected.	NO
Pine Grosbeak	The pine grosbeak was selected as a MIS to represent a large group of species occupying mature conifer habitat complexes, including subalpine fir and Engelmann spruce.	Even though the grosbeak may be present during the winter season, impacts to spruce/fir from the implementation of the proposed action should not affect the species or its habitat.	NO
Warbling Vireo	The warbling vireo was originally selected as a MIS to represent a large group of species occupying the aspen-habitat complex.	Because this species is migratory and not present during the winter and because the alternatives do not influence aspen forests, the warbling vireo will not be selected as a MIS for this project.	NO
Blue Grouse	The blue grouse was selected to represent an economically important game species occupying a wide range of habitats including mature conifer, shrub and grass/forb habitat complexes. This species is known to occur during the winter and utilize habitats found in the analysis area.	This species generally occurs in dense forests, where they feed in the tops of conifers. Implementation of the proposed action is not expected to affect this type of habitat	NO
Beaver	The beaver was selected as an indicator of riparian wetland habitat complexes	Because beaver generally hibernate during the winter in protective lodges this species should not be impacted by winter recreational activities.	NO

<b>Common Name of MIS</b>	<b>Habitat</b>	<b>Rationale for selection or non-selection as MIS for this project</b>	<b>Analyzed as MIS for Project</b>
Ptarmigan	The ptarmigan was selected as an indicator of alpine/talus habitat. The ptarmigan has been documented in remote portions of both the Mount Zirkel and Flat-tops Wilderness Areas.	The ptarmigan may spend some periods during the winter at lower elevations within the analysis area. The ptarmigan will generally occupy Krummholtz-willow communities at timberline or riparian willow communities below timberline from October-May. Winter recreation does have the potential to affect these winter foraging and cover habitats.	YES
Vesper Sparrow	The vesper sparrow was originally selected as an indicator of the grass/forb habitat complex. This bird is well distributed and common within suitable habitat on the Routt National Forest.	The vesper sparrow is not present in the analysis area during the winter season and impacts to potential habitat are not anticipated.	NO
Sagebrush Vole	The sagebrush vole was originally selected as an indicator of the mixed deciduous shrub (sagebrush) habitat complex.	This species is not known to occur in the sagebrush habitats on the Routt National Forest and deep winter snow on the Routt National Forest may exclude the year-long need for this species to be active. Therefore it is unlikely that suitable habitats for this species occur in the analysis area.	NO
Brown C. Rosy Finch	The brown-capped rosy finch was selected as an indicator of alpine/talus habitat complexes. This bird nests at high elevations, usually above tree line, only in vertical cliffs and crags.	This species does not occupy the habitat during the winter season in the analysis area, and its preferred habitat will not be impacted by the proposed action.	NO
Wilson's Warbler	The Wilson's warbler was originally selected as an indicator of riparian/wetland habitat complexes.	The warbler is a Neotropical migrant and will not be present in the analysis areas during the winter season.	NO
Rocky Mountain Elk	The elk was selected as an economically important game species associated with the mature conifer, aspen,	Implementation of the proposed action may attract people to the wintering grounds of elk and could potentially result in conflicts with	YES

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<b>Common Name of MIS</b>	<b>Habitat</b>	<b>Rationale for selection or non-selection as MIS for this project</b>	<b>Analyzed as MIS for Project</b>
	shrub, grass/forb and lodgepole pine habitat complexes. Elk winter range is relatively small, but does occupy approximately 2,650 acres in the analysis area.	wintering elk.	
Mule Deer	The mule deer was selected as an economically important game species associated with the mature conifer, aspen, shrub and grass/forb habitat complexes.	Mule deer do not use the winter ranges to the extent that they are used by elk and the use of elk as a MIS in this analysis will act as a surrogate for mule deer.	NO
Blue-gray Gnatcatcher	The blue-gray gnatcatcher was selected as an indicator of the mixed deciduous shrub land habitat complex.	This species is not present in the analysis area at any time during the year and management actions associated with winter recreational activities will not affect the gnatcatcher or its habitat.	NO
Green-tailed Towhee	The green-tailed towhee was selected as an indicator of the mixed deciduous shrub habitat complex. This bird is well distributed and abundant within the mountain shrub type on the Routt National Forest (Kingery 1998). Atlas records verify that green-tailed towhees are most at home in the foothills, low mountains, and mesas, and does not regularly inhabit the higher elevations associated with the analysis area.	Winter recreation should not negatively affect towhee habitat and the species will not be present in the analysis area during the winter recreation season. Also, the use of elk as a MIS will serve as a surrogate for the small amount of mountain shrub community type in the analysis area that may be occupied by the towhee during the summer months.	NO
Northern Goshawk	The northern goshawk was selected as an indicator of the mature coniferous habitat complex. This hawk is relatively common and well distributed within suitable habitat on the Routt National Forest.	No part of the goshawk's habitat would be modified by the proposed action. The northern goshawk typically would not be present in the analysis area during the winter season.	NO
American Marten	The American marten was selected as an indicator of the mature coniferous habitat	Marten may be indirectly affected by the implementation of the proposed action because the action	YES

<b>Common Name of MIS</b>	<b>Habitat</b>	<b>Rationale for selection or non-selection as MIS for this project</b>	<b>Analyzed as MIS for Project</b>
	complex. American marten are relatively common and well distributed within suitable habitat on the Routt National Forest.	has the potential to affect the martens' prey base. Marten typically occupy densely timbered areas. These habitats exist in the analysis area but the majority of the impacts are associated with winter recreational use in open meadows.  Marten will expand there range of habitats to include open areas during other seasons, including high elevation riparian areas during the winter.	
Osprey	The osprey was selected as an indicator of mature conifer and open water habitats.	This raptor is uncommon on the Routt National Forest and only documented within one breeding block on the Forest (Kingery 1998). Mature conifer habitat and open water will not be impacted by this project.	NO
Bald Eagle	The bald eagle was selected as an indicator of mature conifer and open water habitats. This federally Threatened species is uncommon on the Routt National Forest and only occasionally observed on the Forest.	Bald eagles are generally not present in the analysis area during the winter, they will generally winter at lower elevations along large river ways (i.e. the Yampa River) that may periodically melt and open up during the winter season. The action alternatives will not affect mature conifer or open water habitats.	NO
Greater Sandhill Crane	The greater sandhill crane was selected as an indicator of riparian/wetland habitat complexes.	This bird is a recovered state endangered species with a limited distribution and it is primarily influenced by nesting disturbance as opposed to habitat management. This species is not present on the Forest during the winter (migratory) and its habitats are not anticipated to be impacted by any of the alternatives.	NO
Wood Frog	The wood frog was selected as an indicator of riparian wetland habitat complexes. The wood frog has been documented as occurring in the analysis area. Many amphibian populations are	Because of the strong influence on of factors outside of Forest Service management on this species, the wood frog will not be selected as an MIS for this project. The ptarmigan analysis will provide information about riparian habitats, similar to	NO

Common Name of MIS	Habitat	Rationale for selection or non-selection as MIS for this project	Analyzed as MIS for Project
	strongly influenced by factors beyond the control of land managers. These factors include: ozone depletion, global warming, and chytrid fungus.	the ones used by wood frog	
CO River cutthroat trout	The Colorado River cutthroat trout was selected as an indicator of aquatic habitat conditions. This species has been identified as occurring in the analysis area however.	Colorado River cutthroat trout populations and preferred habitats are vulnerable to the unintended consequences of winter recreation use activities. Because this species is linked to water quality concerns and the selected alternative may affect water quality, this species will be carried forward in this analysis.	YES
Sharp-tailed Grouse	The sharp-tailed grouse was selected as an indicator of the mountain shrub habitat complex. The mountain shrub community type occurs very minimally in the analysis area.	Sharp-tailed grouse habitats then should not be affected by winter recreation in the analysis area. Additionally, the species is not known to occur within suitable habitats in the area. Finally, effects within the limited amount of mountain shrub habitat type are evaluated through the use of Elk as an MIS for the mountain shrub habitat complex.	NO

The MIS species selected for this analysis are the American marten (*Martes Americana*), the Rocky Mountain elk (*Cervus canadensis*), the white-tailed ptarmigan (*Lagopus leucurus*) and Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus*).

#### **American Marten (*Martes Americana*)**

The marten is designated as a Sensitive Species in Region 2 and was identified as a management indicator species in the Forest Plan. This species was selected as an MIS due to its presence in the analysis area during the winter season, potential impacts to its prey caused by snow compaction, both influencing subnivean wildlife and the possible increase in competing predator access, and to discuss effects to a species dependent on mature forest stands that exist in the analysis area.

Marten prefer late successional stands of mesic, conifer-dominated forest, preferably spruce-fir, but also lodgepole pine, Douglas fir, and occasionally cottonwood riparian areas. Marten are closely associated with late-successional forest stands with complex physical structure on or near the ground (USDA Forest Service 1994, Bennet and Samson 1984). Structural features that associated with marten habitat include overhead cover

(especially near the ground), high volumes of coarse woody debris (especially large diameter), and horizontal heterogeneity of vegetation. Den sites are key habitat components, which may be at considerable height from the ground in a hollow tree (often an abandoned woodpecker hole), or on or under the ground. Dens and resting sites are usually associated with snags, woody forest floor debris, brush, squirrel middens, rockslides and/or outcrops (USDA Forest Service 1998a). Marten are dietary generalists, feeding on small mammals (red-backed voles, red squirrels, and snowshoe hare), birds (grouse, bird eggs, etc.), and also carrion, insects, fruits, and berries.

Marten tend to avoid habitats that lack overhead cover, although studies in Colorado have shown them to forage 0.8-3.2 km from the nearest forest stand and also to forage above timberline in rock talus. Overhead cover likely provides protection from predators. At least 30 percent canopy cover is thought necessary to maintain suitable marten habitat, with 40-60 percent canopy cover considered optimum for resting and foraging. Marten do not typically forage in open areas but sometimes do. Some early successional stages provide overhead cover in the form of dense herbaceous or shrubby vegetation.

Areas lacking overstory cover such as blowdown, burned areas, clear cuts, and open meadows with little to no overstory or shrub cover may still provide good cover if a large amount of coarse woody debris is present (Buskirk and Powell 1994). Johnson and Paragi (1993) reported that in Alaska, marten have been found in early post-fire stages that have few living trees where tree boles have fallen to the ground in dense networks or where herbaceous growth is dense.

Physical structure of a stand may be more important to marten and marten prey species than vegetation species composition (Buskirk and Powell 1994). Subnivean spaces can be formed by vegetation and coarse woody debris near the ground, which break the surface of snow, facilitating marten access under the snow. These areas are very important components of winter marten habitat. Coarse woody debris near the ground provides overhead cover, natal and maternal denning habitat, access to subnivean spaces where most prey is captured in winter, escape from predators, and protective thermal microenvironments, which are very important during winter.

Shade-tolerant species such as spruce/fir retain lower branches on the bole in shaded sites, which contribute to structure near the ground, important for cover and formation of subnivean spaces in winter. Marten are limited to the narrowest range of habitats within their home range during winter (USDA Forest Service 1994b). Marten have been documented to spend the majority of their time foraging and capturing prey in subnivean spaces or at the snow surface during winter in the western United States (Corn and Raphael 1992).

Surveys for marten have been conducted on the Routt National Forest since 1994 including surveys conducted in the analysis area. Camera station surveys have followed protocol established in the USFS Research Station publication *American Marten, Fisher, Lynx, and Wolverine: Survey Methods for Their Detection* (USDA Forest Service 1995). Marten tracking surveys have also been implemented on the Forest since 2001. These tracking surveys are designed to provide an index of population density. Although the tracking data have not yet been analyzed, marten are considered well distributed and common in the analysis area, within suitable habitat. Marten populations will continue to be monitored in the analysis area through the use of the camera stations as well as track transect surveys.

### **Rocky Mountain Elk (*Cervus canadensis*)**

The Forest Plan classifies elk as a management indicator species (MIS) due to its importance in Colorado as a hunted big game species (USDA Forest Service 1998a). Elk use within the analysis area occurs primarily in the spring, summer, and fall, with high use of south facing slopes at lower elevations in their winter ranges. There are approximately 2,650 acres designated as deer and elk winter range habitat in the analysis area. Elk use all habitats during summer, spring and fall within the analysis area. Some lower elevation aspen and grass-type habitats provide big game winter range during exceptionally mild winters.

Reproductive success is somewhat determined by nutritional condition of the cows. There is some evidence to indicate a below normal reproductive rate may result from animals using low-quality summer ranges. Studies have found that the year-round diet of elk consists of 65.5% grass and grass-like plants, 26.8% browse, and 7.6% forbs. Grasses and forbs are preferred during spring and early summer, and woody browse is preferred during winter.

The Colorado Division of Wildlife monitors elk populations annually by monitoring hunter success and aerial surveys. Elk use in the analysis area is considered to be high and increasing (personal communication Jim Hicks, 2004). The Routt National Forest currently has the highest population of elk in the history of the Forest. However, this trend, while accurate for the entire analysis area, is not the case for the deer and elk winter range in the analysis area. “Elk populations in MA 5.41 winter range (2,650 acres) residing within the analysis area are about 200. This population is stable and probably limited by the quality and quantity of deer and elk winter range in that area” (personal communication Jim Hicks, 2004). Population estimates are considered to number approximately 26,000 animals in the northern part of the Hahns Peak/Bears Ears Ranger District.

### **White-tailed Ptarmigan (*Lagopus leucurus*)**

Ptarmigan occur primarily in alpine tundra above tree line during the summer. Birds are widely distributed across the alpine tundra during the summer, when it occurs only at or above timberline.

During fall and winter, they are very concentrated, and large areas may be unoccupied. Areas that are mostly snow free early in the season are used for breeding, and females with broods generally occur on rocky, wet tundra. They will nest on the ground in slight depressions among rocks lined with fine grasses, leaves, and lichens. Breeding densities depend largely on the availability of willow shrubs in late April and early May.

Males generally winter above timberline in areas of short willow thickets, while females often winter at or below timberline in taller, denser willow thickets and along willow-dominated watercourses. Females may winter below timberline in higher mountains, and in areas of western Colorado where snowfall is heavy, both sexes move below timberline.

Winter cover is of primary importance. Wintering areas consist of mature willow and alder communities below treeline or dwarf Engelmann spruce and willows at timberline. Soft snow for snow burrows within or near feeding areas is of prime importance. To avoid the worst temperatures, ptarmigans huddle in close groups and will often dig into snow burrows. Ptarmigan usually will glean and pick the buds, stems, seeds, fruits and



flowers of willows and other alpine plants. Winter feeding requirements of ptarmigan are almost exclusively met by willows. Willow buds, twigs, and leaves compose over 90% of their winter diet.

In an interview with Rick Hoffman, Avian Specialist with the Division of Wildlife, stated, “Ptarmigan population trends are stable overall for this species in the analysis area. There are normal cyclic ups and downs in population numbers, driven by weather and other naturally occurring factors. Generally, there are few impacts associated with ptarmigan habitats because the preferred habitat occurs in subalpine and alpine habitats where there are no major human impacts such as timber harvests or development. If birds are wintering at lower elevations, impacts from winter recreational activities may affect this species” (personal communication with Rick Hoffman, Avian Specialist, CDOW, May 25, 2004).

### **Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus*)**

The Colorado River cutthroat trout is native to tributaries in the Upper Colorado River basin. As did most inland forms of cutthroat trout, Colorado River cutthroat trout evolved in isolation from other salmonids. For this reason, evolution has left the subspecies vulnerable to hybridization with rainbow trout and to replacement due to competition by brook trout and brown trout (Behnke 1992). Due primarily to the introduction of exotic species, this subspecies has become restricted to high elevation, low-order streams.

Colorado River cutthroat trout thrive in cold, clean water environments that occur in the headwater portions of many watersheds of the West. Stream shading, provided by healthy riparian communities, is an important factor in maintaining suitable stream temperatures and maintaining bank stability. Cutthroat trout are sensitive to habitat alterations that result in elevated sediment and temperature levels and reduction of instream cover. Colorado River cutthroat trout and their habitat are known to occur in the project area.

### **Effects To Wildlife, Amphibians, Fish, Rare Plants And MIS**

The effects of the alternatives on wildlife, amphibians, fish, rare plants and MIS are evaluated as positive or negative and as direct, indirect, and cumulative. Effects are compared to the existing condition and no-action alternative in order to evaluate the change in condition. Two types of actions primarily influence wildlife: disturbance actions and changes to habitat. Either of these actions may result in multiple types of effects that may influence individual species or populations.

The Code of Federal Regulations - 36 CFR 219.19(a) (6) states, population trends of the management indicator species will be monitored and relationships to habitat changes determined. Management indicator species are used to estimate the effects of the proposed actions and alternatives on threatened, endangered, and Forest sensitive species, and to assess the effects of management activities on MIS populations and the populations of other species with similar habitat needs that they may represent. MIS are monitored in collaboration with implementation of the Forest Plan.

## Direct and Indirect Effects Common to All Alternatives for Wildlife

### *Disturbance*

Behavioral responses are influenced by characteristics of the disturbance itself (type of activity, distance away, direction of movement, speed, predictability, frequency, and magnitude) and location (above versus below, in the open versus screened by topography or vegetation). The most detrimental (energetically costly) disturbances to wintering animals are those that are unanticipated. Implementation of the proposed action will likely result in noise disturbance, potential damage to vegetation, release of pollutants into the environment, and an increase in snow compaction. These affects have the potential to cause significant adverse impacts to wildlife.

Human activities can impact animals through 4 primary routes: 1) exploitation, 2) disturbance, 3) habitat modification, and 4) pollution. Disturbance caused by recreational pursuits or other human activities may elicit behavioral responses and/or physiological responses in wildlife. Some behavioral responses are unique to certain species, such as the propensity of bighorn sheep and mountain goats to withdraw to cliffs when hearing sudden, loud noises. The learned component of wildlife responses to humans has been attributed to the number and outcome of interactions between individuals and human stimuli during an individual's lifetime and may therefore, vary among individuals or populations. An individual's behavioral response may also vary according to season, age and sex, body size, group size, motivational state, behavioral responses of cohorts, and habitat security (Joslin and Youmans 1999).

Effects of disturbance (behavioral and physiological responses) may have ramifications to populations. For example, disturbance that alters behaviors within a local population, which then results in distribution and habitat use changes, may ultimately alter reproductive success and therefore, the health and status of the population (Joslin and Youmans 1999).

Another example, the two basic strategies utilized in wild ungulate populations. Ungulates may increase energy expenditure to meet the increased energy demands of winter by foraging for nutrients necessary for metabolic processes, or they may restrict their activity and conserve energy by consuming a minimum amount of forage and minimizing the rate of depletion of body fat reserves (Moen 1976). Energy and material resources available to wild ungulates are at their lowest point in the annual cycle during the winter season as weather conditions present a thermal energy sink of greatest relative proportions; there is no positive increment to food resources, snow often renders some of the food unavailable, and accumulating snow increases the energy expenditure necessary for movement (Moen 1976). Therefore, it is very important that wildlife remain as undisturbed as possible in the winter; the presence of human disturbance is counter to their long-term physiological and behavioral adaptations.

Noise disturbance is a serious concern, where information and research about wildlife responses and requirements to noise is limited. Loud noises are usually associated with avoidance reactions for wildlife. Avoidance behavior increases as the number of negative encounters increases, and may result in displacement and changes in distribution. Panic-type avoidance responses may occur as a result of any kind of abrupt, unexpected intrusion. Other affects may be further elicited. An immobility reaction resulting from noise-induced fear could increase mortality of herpetofauna (a grouping of

animals that includes amphibians and reptiles) that inhabit areas used by ORV's. Similarly studies in the Sonoran Desert found that motorcycles and dune buggy sounds (greater than or equal to 100 decibels) decreased the acoustical sensitivities of a number of lizard species. Some species were particularly sensitive to these sounds and exposures as short as 8 minutes in duration resulted in actual hearing loss. Similar effects have been documented in animals found here on the Forest. Thus, vehicle noise may indirectly cause mortality by eliminating the species' ability to detect and capture necessary food items and detect and avoid predators. Another study suggested the possibility that vehicle noises may not allow amphibians to properly hear and move toward breeding aggregations. This impact may be associated with winter motorized recreation.

#### *Snow Compaction and Competitors*

Many permitted outfitter/guides and clubs perform daily grooming activities to access their operating area. Snowmobiles and non-motorized users will also compact snow. Lynx and carnivore biologists have suggested that packed snow trails may serve as travel routes for potential competitors of lynx, especially coyotes (Ruediger et al. 2000). The usual spatial segregation of lynx and coyotes "may break down where human modifications to the environment increases access by coyotes to deep snow areas." Some studies suggest that coyotes are thought to have originated in areas where snow cover was minimal, and it is only within the last century that they have colonized the boreal forests (Ruediger et al. 2000).

Other competitors may also use these groomed or compacted routes, those being red fox, bobcats, and mountain lions. Therefore, human caused access may lead to these predators entering deep snow areas where they were usually never present historically, hence, potentially altering the natural balance between winter predator/prey relationships. This may influence the natural evolutionary relationships between these species reducing prey abundance for winter and summer time inhabitants. This may not only be an impact to lynx but to other high elevation wintering forest carnivores such as the American marten, long tailed weasel, and the boreal owl.

#### *Snow Compaction and Effects on Subnivean Wildlife:*

Snow compaction can also negatively affect subnivean wildlife, animals that live under the snow. Over-snow recreation in fall compacts snow, reducing access to food and subnivean movement when animals are preparing for winter. Un-compacted snow provides animals with insulative properties protecting it during the cold winter temperatures. A temperature gradient is very important to subnivean wildlife. This event provides the "subnivean space." Its insulating temperature gradient reduces snow density and contributes to the formation of a space between the surface of the ground and the snow pack. This allows subnivean animals' unimpeded access to forage, water, and prospective mates during the winter. When snow becomes compacted, subnivean animals lose the protection that the subnivean environment provides. "Jarvinen and Schmid (1971) found that snowmobile compacted snowfields increased the winter mortality of small mammals. They indicated that compaction inhibited mammal movements beneath the snow and subjected subnivean organisms to greater temperature stress" (Joslin and Youmans 1999). It also subjects the animals to predation when they emerge from the protective environment and expose themselves while accessing forage or for reproductive purposes.

Because the exact impacts from winter recreation upon subnivean wildlife in the analysis area are difficult to formulate, a research project or administrative study may provide the Forest Service with answers to better manage for this species in the area. Currently, there is a proposal to conduct a master's research study in the analysis area to analyze and evaluate snow compaction on subnivean small mammals.

### General Effects to Wildlife and Wildlife Habitats from Winter Recreation

Recreational snowmobiling has expanded dramatically over the past 25 years in the United States. Increasing numbers and recent technological advances that allow snowmobiles to travel to more remote and environmentally sensitive areas have raised concerns that the use of these vehicles results in adverse environmental impacts, safety concerns, and conflicts with other users. For example, according to studies by the Environmental Protection Agency (EPA) and other federal and state agencies, snowmobiles (two-stroke engines) discharge up to 25 to 30% of their fuel (a combination of oil and gas containing numerous toxic compounds) unburned into the environment (USGAO 2000) whereas certain wildlife species may be indirectly impacted by the unburnt discharged fuel emissions.

The National Park Service has conducted a comprehensive environmental impact statement addressing all types of winter use, including snowmobiles. As a result, the agency found that the use of snowmobiles has had significant adverse effects, including increasing levels of air and noise pollution, disturbing wildlife, and conflicting with visitors' solitude (USGAO 2000). For example, a National Park Service study reported that although cars outnumbered snowmobiles 16 to 1 in Yellowstone national Park in the winter, snowmobiles generate between 68 and 90 percent of all hydrocarbons and 35 to 69 percent of all carbon monoxide released in the park (USGAO 2000).

It is not yet fully understood how these impacts associated with snowmobile use are affecting wildlife species, however many studies have proven that negative adverse affects are occurring primarily in the form of stress responses in wildlife. These stress responses are evident in behavioral and physiological observations. Obvious behavioral responses, such as flight or interference with foraging, have energetic costs and can thereby reduce vigor, however subtle physiological responses, such as elevated heart rate, and changes in alertness and posture, have energetic costs as well. Studies have demonstrated the energetically costly active-defense response (flight-or-flight), which is characterized by adrenalin-induced increases in heart rate, blood flow to skeletal muscle, increased body temperature, and elevated blood sugar. However, an animal experiencing a deficit energy budget may employ an alternative behavioral and physiological response to disturbance that is expressed as the opposite of the active-defense response.

The passive-defense response is characterized by the inhibition of activity, reduced blood-flow to skeletal muscle, reduced blood flow to the digestive system, reduced heart rate and reduction in body temperature (Joslin and Youmans 1999). The often-misinterpreted passive-defense response is documented in a wide variety of vertebrates and is especially well developed in newborn animals and incubating birds (Joslin and Youmans 1999). Often misconstrued, as a lack of response, habituation, or even "tameness," such behavior may be indicative of an animal experiencing a severe nutritional or energetic deficit or a set of circumstances that offers no escape option

(Joslin and Youmans 1999). Physiological responses to disturbance cannot be assumed to be observable. Reliance on overt behavior as an indicator of stress can be misleading. In addition to the shortcomings of behavior as a stress indicator, association of behavioral cues with physiological stress varies among species (Joslin and Youmans 1999).

Along with providing a facilitated access for snowmobilers, winter guided ski tours and snowcat-grooming operations may provide access to backcountry skiers and snowboarders as well. In circumstances where motorized use is predictable and localized (confirmed routes), wildlife responses to people afoot or skiing may be more pronounced than it is to motorized vehicles (Joslin and Youmans 1999). As winter dispersed recreational uses and activities increase, more people will be accessing these higher elevation, deeper snow, and rougher terrain habitat types. Many remote areas are being visited more frequently and an increase in adverse impacts to wildlife will be evident.

### Cumulative Effects Common to All Alternatives for Wildlife

As we enter the 21<sup>st</sup> century, recreational activities are becoming increasingly more widespread across the landscape. Since Agencies, Counties, States, and the public have requested or promoted more access into many of the more remote areas, we can expect increased human presence and disturbance in wildlife habitat. With a growing human population, transformation of recreational equipment with the advent of technological advances, and continued proliferation of new forms of recreation, we can expect an expansion of human activity into wildlife habitats, including areas where direct human influences have previously been minor or entirely absent. This is occurring in the analysis area.

### Direct, Indirect, and Cumulative Effects Common to All Amphibians

Systematic investigation and experimentation concerning impacts must recognize the influence of diverse conditions of snow, soils, plants, and animals. Because of the potentially vast combinations of environmental variables, it will be difficult to generalize the results of virtually any study conducted on direct impacts of snowmobiles (Bury 1978). Amphibian populations are currently experiencing declines worldwide. Direct and indirect impacts from recreational activities may contribute to these declines (Joslin and Youmans 1999). For example, off-road vehicle use can disturb soils laden with heavy metals of other toxicants leading to chemical contamination of waters. Off road vehicles may directly emit unspent fuel and oil directly into the environment, where amounts would depend on individual machine efficiency. Off road vehicle use can impact amphibian populations by creating migration barriers, destroying habitats, and increasing sedimentation and chemical contamination (Joslin and Youmans 1999). This impact is also true with over-the-snow vehicles, backcountry skiing, and snowshoeing activities, but generally to a lesser degree. Backcountry skiing and snowshoeing activities are generally not associated with environmental contaminants or pollutants. Types of winter recreation uses that compact snow have the potential to create barriers to migration, forage, and prospective mates and may negatively impact amphibian species. Soil disturbances may come from over-the-snow vehicles operating when snow levels are too low. Generally, the greater the torque applied at the machine-environment interface, the greater the potential for impact. The diversity of the interface between the machine and the environment presents a major problem in establishing the impact rate in off-road

vehicle (ORV) research. Soil compaction and/or sedimentation of wet sites and ponds could destroy or reduce amphibian production in breeding sites.

### Direct, Indirect, and Cumulative Effects Common to all Fish

Some winter recreation activities have the potential to affect the hydrologic regimes and water quality. Grooming compacts snow, resulting in those groomed areas having denser snow than the surrounding snowpack. The difference in snow densities can affect runoff patterns during spring melting. Melted snow is able to travel through the snowpack in un-compacted areas. However, in the compacted areas there are smaller and fewer voids between snow particles that restricts the movement of water through the snowpack. As a result, the melted snow seeks other routes. The areas of greatest concern are where the compacted snow routes cross stream courses or follow stream courses. In these areas 'ice-dams' can form which restrict the channel capacity and ability to convey water. When the channel capacity is restricted, water is forced out of the channel. This can lead to streambank erosion and the development of braided channels since the areas outside of the channel are not resistant to the erosive forces of water. Streambank erosion and the development of secondary channels can lead to stream instability and increased sedimentation (Personal Communication with Liz Schnackenberg, December 2, 2003). This affect on water quality can have substantial impacts on fish, amphibians, invertebrates, and wetland plant species.

Water quality concerns would result from 1) increased sedimentation resulting from ice-dams, 2) increased sedimentation and bed and bank destabilization resulting from snowmobiles and grooming operations crossing waterways, and 3) chemical contaminants which are transported to stream channels. From a chemical contaminant standpoint, the greatest concern would be from unburned fuels entering the system through normal use, fuel spills, and/or leaks. Since the activities would occur during the winter, any contaminants entering the system through normal use, fuel spills, and/or leaks into the snowpack would remain in the snowpack until spring melt. Once spring melting began, all of the contaminants would be released at once in a sudden pulse. This is different from a summer operation where spills or leaked contaminants are washed away during the next storm event, and do not accumulate over time.

Two-stroke engines can deposit contaminants on snow, leading to ground and surface water quality degradation, which subsequently may impact aquatic life (Olliff and Kaeding 1999). "Emissions from snowmobiles have been implicated in elevated lead contamination of snow along roadsides (Ferrin and Colthaharp 1974). Hydrocarbons are deposited on the top layer of snow along snowmobile trails (Adams 1974). Contaminants from two-cycle engine exhaust include carbon monoxide, hydrocarbons, Methyl-*tert*-butyl ether (MTBE), Nitrous oxides (NO<sub>x</sub>), and particulate matter (White and Carol 1998). Considerable variation exists among these compounds with respect to toxicity and persistence on water or aquatic sediments. Temperatures and dilution rates appear to affect volatility (e.g. evaporation rate) and long term distribution of specific compounds" (Olliff and Kaeding 1999). "Laboratory tests at three levels of exhaust concentration indicated that pollutants at the rate of 1:1,000 produced readily detectable uptakes of both lead and hydrocarbons. The influence of these pollutants on stamina, measured by the ability to swim against current, was significantly less in trout exposed to snowmobile exhaust than in control fish; the exposed fish made fewer tries to swim against the

current, and swam for shorter lengths of time before resting. The author believed that concentrations of snowmobile exhaust as used in the field test were considerably higher than in all but a few small lakes in heavily polluted areas” (Bury 1978).

“Impacts to aquatic species that can be attributed to atmospheric deposition (burnt oil and fuel exhaust emitted into the atmosphere) from snowmobiles have not been well studied. Field studies are extremely difficult to conduct because atmospheric deposition rates could be affected by numerous factors, including proximity to water, and combustion efficiency of individual snowmobiles. One of the more extensive studies used caged brook trout to determine the effects of exhaust on fish. Exhaust components taken up by fish correlated with levels present in the environment as a result of snowmobile use (Adams 1974). Uptake of exhaust hydrocarbons and other compounds occur through the gills during respiration. It is thought that hydrocarbons and other compounds are incorporated into fatty tissues, such as the visceral fat and the lateral line, in a manner similar to chlorinated hydrocarbon pesticides” (Olliff and Kaeding 1999).

“Accelerated harvesting appears to be another main concern related to impacts from snowmobiles. The most striking documentation concerned the easier winter access to remote lakes provided via snowmobiles. One report indicated that 556 pounds (207 kg) of fish were harvested from a remote lake on a single day; this would have been an entire season’s catch if snowmobile access had not been possible (Cooney and Preston 1971). However, the snowmobile has proven advantageous in spreading out fishing pressures on the larger lakes, rather than concentrating fishing near road access points (Doherty n.d.). One concern seems to be the avoidance of fishing the smaller lakes and ponds” (Bury 1978). While winter ice fishing does occur in the analysis area, the extent of those occurrences are minimal enough not to be of great concern (Personal Communication with Katharine Foster, December 2, 2003).

### Effects of the No Action Alternative on Wildlife and MIS

The continuation of winter recreation in the entire analysis area would represent a higher potential for negative impacts to wildlife, and TES species for the short, mid and long term. The potential impacts that may come from unregulated winter recreational use include recreation during inappropriate snow depth levels, a higher degree in snow compaction, more emissions from unspent gas and oil from snowmobiles and grooming machines, potentially resulting in impacts to water, soils, vegetation, and consequently, wildlife habitat. These potential impacts are just that. They are potential impacts. There is such a great degree in variability of snow conditions, temperatures, water content, recreationists, and types of uses, that it would be difficult to conclusively state that there are adverse affects occurring.

This “No Action” alternative represents the greatest potential for negative impacts to occur. This is based on the likelihood of there being more potential impacts associated with motorized use in the analysis area. This is because snowmobiles and grooming machines (snowcats or thycols) have a higher potential to cover more ground, in a shorter time span, where more snow is compacted, more damage to vegetation could occur, more emissions and pollutants could potentially enter the environment, and potentially more sedimentation could enter water bodies. This would likely happen over a greater area and more often than those affects caused by non-motorized winter recreational use. Non-

motorized use has a smaller potential for these types of impacts to occur, however there still is potential for some of those impacts stated above to result

The No-Action Alternative will likely result in more potential visitors to the area, increases in noise disturbance to wildlife, a greater potential for damage to vegetation, a increase of released pollutants into the environment, more soil disturbance, and more snow compaction, than any other alternative. These affects have the potential to cause the greatest amount of detrimental impacts to wildlife and plants.

The voluntary restriction of motorized use within the snowcat operating area could represent a decrease in potential impacts to wildlife and TES if compliance is acknowledged, respected, and obeyed.

### Direct, Indirect, and Cumulative Effects to MIS

If motorized use was restricted to designated routes within the snowcat operating area, through voluntary compliance, likely potential adverse impacts to MIS, would be reduced. Because voluntary compliance has not been effective, this alternative would represent the greatest potential for adverse impacts to MIS to occur.

### American Marten:

The “No Action” Alternative has the greatest potential to result in adverse impacts to the American marten. This is because of the ability of this alternative to posses the highest potential to cause the greatest amount of snow compaction and therefore potentially influencing subnivean animals that represent the prey base of the marten. Although, this alternative may represent the greatest potential for adverse impacts to occur to this species, it is still likely that implementation of the proposed action would not result in a decline in population and habitat trends Forest-wide.

### Elk:

The management of 5.41 areas in the “No Action” and Action Alternative #1 may be inconsistent with direction provided in the *Routt National Forest Land and Resource Management Plan* (USDA Forest Service 1998a). According to the Routt National Forest Land and Resource Management Plan (1997 Revision, Pp. 2-47 to 2-49), the theme of deer and elk winter or transition ranges (management prescription area designation 5.41) is to managed to provide adequate amounts of quality forage, cover, and solitude for deer, elk, and other species. The desired condition of the 5.41 management area prescriptions directs the Forest Service to manage for deer, elk, and other species that use this area during the winter and spring without being disturbed by human activities. Management of the area will be coordinated with Colorado Division of Wildlife and other agencies responsible for wildlife management. Road systems and trails will be relatively undeveloped. Motorized traffic will be prohibited during the winter and spring. Camping will be restricted during the winter.

The No-Action alternative and Action Alternative #1 have designated the 5.41 deer and elk winter ranges as “suggested non-motorized use areas.” The result of this may attract people to these areas for winter recreating and does not move towards the desired condition for the management area clarified in the Forest Plan. Designating these areas as “suggested non motorized use areas” may further lead to conflicts between humans and wintering animals. This may not be consistent with the intent of the direction



provided in the Forest Plan, when these animals necessitate protection during crucial periods when survival is at risk.

**White-tailed Ptarmigan:**

The “No Action” Alternative has the greatest potential to result in adverse impacts to the white-tailed ptarmigan. This is because of the ability of this alternative to possess the highest potential to cause the greatest amount of snow compaction and therefore potentially influencing winter temperature avoidance strategies of the ptarmigan. Although, this alternative may represent the greatest potential for adverse impacts to occur to this species, it is still likely that implementation of the proposed action would not result in a decline in population and habitat trends Forest-wide. Colorado has been experiencing similar increases in recreation as the rest of the Nation. Because snow compacting activities, caused by many forms of winter recreation, is also congruently increasing, and the fact that ptarmigan populations are stable Statewide, it is likely that winter recreation does not notably affect this species. The ability of the ptarmigan to relocate in the presence of disturbance may be the reason.

**Colorado River Cutthroat Trout:**

The “No Action” Alternative has the greatest potential to result in adverse impacts to the Colorado River Cutthroat Trout. This is because of the ability of this alternative to possess the highest potential to cause the greatest amount of disturbance to vegetation, soils, and water quality. Although, this alternative may represent the greatest potential for adverse impacts to occur to this species, it is still likely that implementation of the proposed action would not result in a decline in population and habitat trends Forest-wide.

Because voluntary compliance has not been effective, impacts to wildlife likely will increase in the long term due to increasing winter recreational activity. Implementation of the proposed action will not directly increase winter recreation however, as the human population increases and the increasing trend in recreation continues to grow throughout the United States, it is highly probable that in the future an increase for potential negative impacts to wildlife would be inevitable. Cumulatively, over time this will result in greater level of impacts compared to other alternatives. This alternative would represent the greatest potential for adverse impacts to MIS to occur. All other alternatives would result in a decrease in potential for negative impacts to all of the MIS species selected for this analysis.

**Direct and Indirect Effects in Management Area 5.41 (Deer and Elk Winter Range)**

According to the Routt National Forest Land and Resource Management Plan (1997 Revision, Pp. 2-47 to 2-49), the theme of deer and elk winter or transition ranges (management prescription area designation 5.41) is to managed to provide adequate amounts of quality forage, cover, and solitude for deer, elk, and other species. The desired condition of the 5.41 management area prescriptions directs the Forest Service to manage for deer, elk, and other species that use this area during the winter and spring without being disturbed by human activities. Management of the area will be coordinated with Colorado Division of Wildlife and other agencies responsible for wildlife management. Road systems and trails will be relatively undeveloped. Motorized traffic

will be prohibited during the winter and spring. Camping will be restricted during the winter.

The No-Action alternative suggests non-motorized use in MA 5.41 and Alternative #1 would designate MA 5.41 deer and elk winter range for non-motorized use. While the 5.41 areas within the project area aren't identified as destination areas for winter recreation, it may further lead to conflicts between humans and wintering animals. This would not be consistent with the intent of the direction provided in the Forest Plan for MA 5.41

Elk face many obstacles in surviving the winter, some of which can be compounded by the impacts of human activities. Human activities and developments at lower altitude can prevent elk use of areas with less snow accumulation. In many areas in the Yampa Valley, historic winter range has been settled by humans and converted into developments or agricultural uses. Human settlement on historic winter ranges decreases the quality and availability of winter range, through changes in habitat, increased harassment by humans, and competition with livestock (Olliff and Kaeding 1999). "Ward et al. (1976) states that harassment can be a concern because elk will readily desert productive habitats when disturbance is excessive." (Olliff and Kaeding 1999).

During the summer, deer and elk can exist throughout most of the Forest in a wider array of habitats, but in the winter they are confined to small areas that become over-utilized and heavily impacted by concentrated numbers. Human presence in those winter ranges has the potential to effect the survival of deer and elk in their winter ranges. Many people use trails that lead into deer and elk winter range because these areas are generally more accessible to the public during the winter because of their proximity to town. Many people and their dogs that enter these "suggested winter non-use areas" negatively affect deer and elk resulting in conflicts between human use and those animals.

These areas consist of both forested and non-forested habitats, generally in the lower elevation fringes of the forest. Many areas are south-facing slopes where snow melt and plant growth occur earlier in the spring, and snow accumulation does not occur until late fall. While this project includes MA 5.41 acres, implementation of the proposed action will not negatively affect deer and elk winter range.

The Routt National Forest Plan guideline directs the Forest Service in the 5.41 management prescription areas to "Prohibit human activity during the winter and spring periods where conflicts with wintering wildlife are identified." The 5.41 management prescription areas that exist on the Routt National Forest all have a strong potential for conflict between wintering elk and winter recreation to occur. Suggested non-use signs have been posted at trailheads existing or leading to deer and elk winter ranges when conflicts are identified. The Forest Service has been involved in many public service announcements asking for voluntary compliance with this use. To date, this has reduced human activity in those areas, however many people still use these trails during periods when signs are posted.

The generally, unpredictable, off-trail nature of backcountry skiing, and snowshoeing, has the potential to create significant disturbance and stress to deer and elk during the winter. Human activity occurring in low-snow areas may impact deer and elk primarily because those areas are likely to be favored by those animals in winter when they are in their poorest physical condition and when forage is least available. In some cases,

stressors and harassment have caused deer and elk to abandon their winter ranges because the quality and quantity of those habitats had been compromised. There is a high economic and social value associated with elk in terms of wildlife viewing, hunting, and being able to experience part of America's heritage, knowing that wild lands, where wild animals exist, continues to survive, and will continue to survive for our children's children. If these animals do leave, a sensation of great loss will surely be felt.

MA 5.41 to the south of the Steamboat Ski Area has a high conflict potential between wintering elk and winter recreation and there have been numerous incidences where conflicts with human activities and elk have occurred (based on interviews conducted with the Colorado Division of Wildlife, 2004). Mule deer are not known to inhabit this particular 5.41 deer and elk winter range. These conflicts come from backcountry skiers/riders who occasionally leave the Ski Area to access more terrain. People that ski this area may ski through the 5.41 winter range. This type of activity has great potential for conflicts to occur between humans and wintering elk. As the terrain dictates, many may ski right into winter range areas for elk. The elk in that area tend to be stressed based on the amount of human activity, the development on private lands, "backdoor" winter recreation use from private developments in the area, and the overall quality and quantity of elk wintering habitat. Those impacts, along with the increase in winter recreational activities and the growing human population, will cumulatively further negatively impact the winter range.

### Cumulative Effects in MA 5.41 – Deer and Elk Winter Range

Based on the current level of private development, the urban interface is encroaching on the winter range Forest-wide. Private in-holdings, juxtaposition to private lands, and Ski Area activities and previous expansions have displaced many deer and elk from their historical winter ranges and have degraded the quantity and quality of this habitat in the winter range habitat in the vicinity of Steamboat Springs. The increase in human population, the increase in development, the increase in winter recreational activities, and the increase of human presence in the area has created more potential for conflict with wintering deer and elk.

Winter recreational use occurring within 5.41 areas from "backdoor" recreationists is a problem. People snowshoe and ski accompanied by their dogs, and snowmobile from their backdoors from private property onto the Forest into the deer and elk winter ranges and disturb the animals. This reduces the quality of wintering habitat for those animals. Because of the shrinking quality and quantity of the winter ranges, we need to counter-balance those effects with proper management of those narrowing habitats. Cumulative impacts associated with the level of private development occurring in the Yampa Valley may lead to a complete avoidance of the area or habituation of animals. Obviously, this is a worst case scenario but this may inevitably be the outcome. Desired management should be to avoid overcrowding and unnatural conditions by providing quality habitat to these animals. The increase in potential conflicts is highly probable throughout most of the winter ranges on the Routt National Forest.

#### *Physiological Effects to Wintering Elk*

"Elk face many obstacles in surviving the winter, some of which can be compounded by the impacts of human activities. Human activities and developments at lower altitude can

prevent elk use of areas with less snow accumulation. In many areas in the Yampa Valley, historic winter range has been settled by humans and converted into developments or agricultural uses. Human settlement on historic winter ranges decreases the quality and availability of winter range, through changes in habitat, increased harassment by humans, and competition with livestock (Skovlin 1982, Taber et al. 1982). Ward et al. (1976) states that harassment can be of concern because elk will readily desert productive habitats when disturbance is excessive” (Olliff and Kaeding 1999).

“Winter is an energetically difficult time, in which elk must carefully balance energy expenditures against energy intake in order to survive. Forage quality is lower in the winter than any other time of year. These ranges, because of the limited habitat and intensity of use, are more sensitive to alteration of vegetation. Elk rely on fairly restricted winter ranges in which food and cover may be limited or of marginal quality, and consequently, any activity preventing them from using all of part of that range likely would have negative impacts on their ability to survive or to successfully reproduce. In experimental feeding trials, most elk lost weight in diets that mimicked winter diets (Nelson and Leege 1982). The over winter nutritional condition of elk has been correlated with reproductive success. Thorne et al. (1976) correlated high winter weight loss in pregnant females with prenatal calf loss, low calf birth weight, and low survival of newborns. Disturbances that occur late in winter, when elk are in their poorest condition and the forage supply may be depleted, are likely to have more negative impacts than those occurring earlier in the winter. Inability of elk to move through late-winter deep and crusted snow may compound the stress associated with disturbance at that time” (Olliff and Kaeding 1999).

“Findings from studies of elk behavior in response to specific human winter recreational activities are varied. Some studies report different responses in elk in areas that differ in types and amounts of activity. Ward (1973) reported that elk are easily conditioned to repeated patterns of human activity, but tend to be disturbed by deviations from normal patterns. One report states that elk began to move when skiers approached to within 15m in an area heavily used by humans year-round, and within 400 m in an area where human activity is much lower (Cassirer et al. 1992). Elk in Yellowstone National Park fled more frequently and over greater distances from skiers off established trails than from skiers on established trails (Aune 1981). During winter in Rocky Mountain National Park, elk were relatively undisturbed by visitor activities occurring on roads, but they exhibited longer flight distances from an approaching person than from an approaching vehicle. Elk will also experience an acceleration in heart rate immediately preceding flight caused by harassment. Repeated flight, however, particularly through deep snow, uses energy reserves that might otherwise be used to help elk survive the critical final weeks of winter (Skovlin 1982)” (Olliff and Kaeding 1999).

*Related Issues and Prior Decisions made in Identified Deer and Elk Winter Ranges:*

In 1993, the Spring Creek Trail was rerouted. The decision reads, “The trail system would be closed to human activity between November 15 and April 15 of each year. This is to mitigate impacts to a resident elk herd that occupies the drainage in winter.” The NEPA analysis explains, “The canyon is critical winter range for a herd of about 100 elk. The elk utilize the riparian area along the creek as well as the side slopes of the canyon. The presence of humans in the canyon could place stress on the wintering elk. Closing the trail in Spring Creek canyon to public use from November 15 through April

15 would reduce impacts to the wintering elk. Habitat improvements would help hold the elk in the canyon and reduce elk-human encounters that create high stress for this herd in other parts of their winter range closer to town. The Colorado Division of Wildlife will advise the City and Forest Service of any impacts occurring to the elk herd and recommend adjustments needed to minimize disturbance to the elk.”

The Spring Creek Trail is within the analysis area of the 2004 Routt Winter Recreation Analysis and may be affected by decisions that come from the analysis. Currently, there is a suggested winter recreation non-use closure affiliated with the trail and signage has been employed to inform users. While many adhere to this “suggestion,” there are a few that use the trail during the closure period. There is no Special Order in place to enforce this closure. Although this area is not designated as 5.41 by the Routt Land and Resource Management Plan (USDA Forest Service 1998a), this area has been identified and managed as important winter range for deer and elk.

In 1999, the Lower Bear Trail (near the Strawberry Park Hot Springs) was created. This trail was located in a 7.1 (Residential/Forest Interface) management prescription area. The trail resides within close proximity to the designated 5.41 area and actually resides within deer and elk winter range. Along with the decision, a mitigation measure was implemented to “sign for winter and early spring closure to all activities for the protection of big game winter range.” This was due to the proximity of the proposed trail to a 5.41 prescription in the Forest Plan and the need to minimize disturbance to elk during these months and to protect big game during the spring calving season. The 7.1 management prescription area has a guideline that states, "Discourage public access on areas identified as winter range." The Lower Bear Trail, in the 7.1 area, would increase access to adjacent designated 5.41 winter range. The decision stated, “This closure is necessary to protect adjacent areas and big game use within the 4.3 and 7.1 management prescription areas that also provide valuable big game winter and spring habitats. The closure will be in effect when winter snow exceeds 12 inches or by November 15 and shall remain closed until May 15.”

The Lower Bear Trail Environmental Assessment identified the importance of the 5.41 big game winter range and the high likelihood for potential conflict with winter recreational activities and elk. Furthermore, this decision was consistent with the direction of the Forest Plan and the intent of the desired condition expressed in 5.41 management prescription areas. Posting a closure order followed by enforcement of that order would protect big game that use the area in the winter. This trail or area should not be affected by the implementation of the proposed action, however, it provides an example of previous project and current management to reduce human/wildlife conflicts in those deer and elk winter ranges.

### Suggested Design Criteria or Mitigation:

MA 5.41 provides for non- motorized use in the winter, resolving any conflicts with big game in favor of the wintering game. The Plan states that seasonal closures may be necessary during crucial periods for these animals. A closure may not necessarily be applicable to all winter range areas at the same time. Each winter range requires an assessment on a site-by-site basis, and conditions within these winter ranges will likely vary from year to year. However, when conflicts are identified, resources are limited to enforce an area closure. During drought years, ungulate overcrowding and competition

coupled with harsh winters, can exponentially multiply impacts and stressors whereas impacts, or conflicts with human uses, can be deadly to deer and elk. A Special Order provides authority to protect these animals in their winter ranges during these crucial periods.

Furthermore, there is currently no means to enforce the exclusion of motorized use in the 5.41 management areas. Motorized use is prohibited in the 5.41 areas, according to the Forest Plan.

#### *Onset Timing of Winter Recreation Use Season*

One mitigation necessary to improve the protection of the natural resources in the area is the onset timing of the winter recreation season. This issue is more pertinent to over-the-snow machines because they generally represent more potential for adverse impacts to soils, water, and vegetation. However, negative impacts from non-motorized use may negatively effect resources although this is likely minimal. The impact of snowmobiling on the biota varies with the depth of snow accumulation, the intensity of snowmobile traffic, and the susceptibility of the organism to injury caused by cold temperatures or physical contact. Snow levels can change on a daily basis, especially at the beginning and end of the snowmobiling season. Snow conditions quite often vary and snow levels may rise and fall during different times throughout the winter. The lower the snow level is, the greater the potential for direct damage to occur impacting the soils, water, vegetation, and subsequently, wildlife. A mitigation measure requiring 12” of uncompacted snow prior to snowmachine use (with exceptions for classified roads) should protect potentially impacted biota as well as providing for wildlife that winter in the subnival habitat. While this snow depth would not completely eliminate all the potential affects to soil, vegetation, and wildlife, this level would help to reduce potential impacts and ensure a reduction in snowmobiles, grooming machines, and to a lesser extent non-motorized use, directly disturbing the soils, vegetation, and water quality.

#### Effects of Snow Compaction on Vegetation, Soil and Water

“Vegetation, soils, and wildlife can suffer both directly and indirectly from the passage of snowmobiles. Significance of impacts is related to rarity of the vegetation type, the value of the vegetation to wildlife species that depend on it, and to the potential to de-stabilize soils (Cole and Landres 1995). Vegetation is directly affected by trampling, which initially bends and weakens leaves and branches and ultimately breaks them. Trampling can directly damage plants by reducing photosynthetic surfaces, seed production, carbohydrate reserves, and ripping their root systems from the ground. Woody plant species are particularly vulnerable to physical damage by snowmobiles (Wanek 1973)” (Olliff and Kaeding 1999). “The increase in biomass removal (willows being clipped, underground roots disturbed) soil disturbance, vegetation compaction and soil removal, during shoulder seasons where snow cover is patchy, and in willow carrs where tips are of woody vegetation are exposed. This occurs when snowmobiles cross from snow patch to snow patch where ground and vegetation are exposed. Adverse impacts to vegetation and soils are more likely to occur on wind swept ridges and at Trailhead/Access areas” (personal communication with John Proctor, Forest Botanist, 2004). “Winter recreation trails along streams negatively affect riparian vegetation with concurrent increases in sedimentation to adjacent streams. Sediments can inhibit or kill periphyton communities,

bacteria, and fungi, which are important food sources for invertebrates, amphibians, and fish (Cardone and Kelly 1961, Murphy et al. 1981)” (Olliff and Kaeding 1999).

“There is a strong correlation between soil damage and damage to the vegetation. Soil compaction and erosion, for instance, influence the ability of plants to take up nutrients and carbon dioxide, experience proper root growth, and have enough stability to grow upwards. Temperatures beneath snow compacted by snowmobiles are considerably colder than those under undisturbed snow cover. This affect influences the growth and reproductive success of vegetation. Snow compaction lowers soil temperatures and reduces the survival of plants and soil microbes. In spring, compacted snow remains longer in some sites, altering access to food and emergence of vegetation (Knight, Anderson et al. 1975)” (Joslin and Youmans 1999).

Snowmobiles and grooming machines may experience similar results when crossing or recreating on open bodies of water. This can result in contaminants directly entering the water, disturbance to soils, damage to vegetation, and personal risk to life and limb. This type of recreational activity is becoming increasingly more popular. This form of recreation has great potential to create many damaging impacts to soils, water, and the vegetation.

### Effects of Alternative 1 – Proposed Action (Modified) on Wildlife and MIS

This alternative would substantially reduce potential impacts caused by motorized winter recreation activities. By segregating uses, the likely result would be a large area (31,582 acre non-motorized area) that may not be impacted as heavily as it would by non-motorized use. These impacts may be difficult to substantiate, however it is the potential for negative impacts that may be greatly reduced. Any other negative direct, indirect, and cumulative effects to wildlife and TES are similar to the affects listed in the “No Action” alternative however it is likely that there will be greater potential for adverse impacts in the newly designated motorized area (74,543 acres). The proposed action would not result in any net increase in groomed or designated over-the-snow routes, and/or snowmobile play areas. Therefore, this alternative would maintain consistency with the *Canada Lynx Conservation and Assessment Strategy*, specifically under “Programmatic planning-standards: 1) On Federal Lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU unless the designation serves to consolidate unregulated use and improves lynx habitat through a net reduction of compacted snow areas.

Both the No-Action and Alternative #1 designate the area around the newly constructed wildlife underpasses on US highway 40 (East side of Rabbit Ears Pass near Muddy Pass Lake and Baker Mountain) as “motorized winter recreation use.” By allowing all forms of winter recreation in the immediate vicinity of those underpasses, the selection of either of these alternatives may create barriers to wildlife movement. This “designation” may inadvertently compromise the intent and the investment of those underpasses. Furthermore, this action may be inconsistent with the direction in the *Canada Lynx Conservation and Assessment Strategy*.

One other difference in the two alternatives, No-Action and Action Alternative #1, is the Steamboat Springs drinking water source at Long Lake and Fish Creek Reservoirs. The

closure of the reservoirs located in the municipal watershed would be a decrease in total area that may be negatively influenced by motorized use. Where motorized use restrictions are confined to designated trails within the permitted snowcat area, and where snowmobile use is allowed on designated routes inside and through the permitted snowcat operation area, this would again represent a smaller potential for impacts to wildlife, TES and MIS.

## Direct, Indirect, and Cumulative Effects to MIS

### **American Marten:**

The selection of Alternative #1 has the potential to result in positive impacts to the American marten. This is because the alternative would segregate uses, therefore reducing the potential for motorized use in a large section of the analysis area. Again, it is likely motorized forms of winter recreation that have a greater potential for adverse impacts to occur to wildlife. Non-motorized use again does have the potential to negatively influence wildlife, but it is likely to a lesser extent. Specifically, there is a smaller chance that the non-motorized users would compact as much snow as the motorized users, potentially unfavorably influencing subnivean wildlife that represents the prey base of the American marten. Being that this alternative is representative of the existing condition (because most winter recreators do currently adhere to the suggested use boundaries), this concentration of motorized use should not differ appreciably than the current situation. Therefore, positive impacts to marten may be the result in the non-motorized portion while marten in the motorized area would not likely be influenced much differently than the current situation. Although, this alternative may represent the greater potential for beneficial impacts to occur to this species, it is still likely that implementation of the proposed action would not result in an increase or decline in population and habitat trends Forest-wide.

### **Elk: Management Area Prescription 5.41 (Deer and Elk Winter Range)**

Action Alternative #1 has also retained the overlap of the non-motorized winter use designation within the 5.41 deer and elk winter ranges (See effects to Deer and Elk under the No-Action Alternative). Therefore, Alternative #1 may not be consistent with the intent of General Management and Forest Wide direction in the 5.41 deer and elk winter ranges. This may inevitably attract people to these areas which may further reduce the quality and quantity of this habitat type for deer and elk. Directing winter recreational use into the 5.41 does not meet the desired future condition of the area and is inconsistent with Guideline #1 under *General Management Forest Plan Direction in 5.41 (Deer and Elk Winter Range)*. (Alternatives #2 - #4 are consistent with the directives and desired conditions within those 5.41 management area prescriptions.) Although, this alternative may represent the potential for negative impacts to occur to this species, it is still likely that implementation of the proposed action would not result in an increase or decline in population and habitat trends Forest-wide.

### **White-tailed Ptarmigan:**

The selection of Alternative #1 has the potential to result in positive impacts to the white-tailed ptarmigan. This is because the alternative would segregate uses, therefore reducing the potential for motorized use in a large section of the analysis area. Again, it is likely motorized forms of winter recreation that have a greater potential for adverse impacts to



occur to wildlife. Non-motorized use again does have the potential to negatively influence wildlife, but it is likely to a lesser extent. Specifically, there is a smaller chance that the non-motorized users would compact as much snow as the motorized users, potentially unfavorably influencing winter temperature avoidance strategies exhibited by the ptarmigan. Being that this alternative is representative of the existing condition (because most winter recreators do currently adhere to the suggested use boundaries), this concentration of motorized use should not differ appreciably than the current situation. Therefore, positive impacts to ptarmigan marten may be the result in the non-motorized portion while ptarmigan in the motorized area would not likely be influenced much differently than the current situation. Although, this alternative may represent the greater potential for beneficial impacts to occur to this species, it is still likely that implementation of the proposed action would not result in an increase or decline in population and habitat trends Forest-wide.

### **Colorado River Cutthroat Trout:**

Alternative #1 has the greater potential to result in positive impacts to the Colorado River Cutthroat Trout than the No-Action Alternative. This is because of the ability of this alternative to segregate uses, whereas the elimination of motorized use within portions of the analysis area, would likely result in a greater potential for positive effects to the Colorado River Cutthroat Trout (See discussion directly above under “White-tailed Ptarmigan”). Although, this alternative may represent the potential for beneficial impacts to occur to this species, it is still likely that implementation of the proposed action would not result in an increase or decline in population and habitat trends Forest-wide.

Cumulative effects to MIS are similar to the affects listed in the “No Action” Alternative however it is likely that there will be a reduction in the potential for negative affects to all MIS based on enforceable boundaries. Because voluntary compliance has not been completely effective, impacts to MIS likely will increase in the long term due to increasing winter recreational activity. As stated earlier, implementation of the proposed action will not directly increase winter recreation however, as the human population increases and the increasing trend in recreation continues to grow throughout the United States, it is highly probable that in the future, an increase for potential negative impacts to MIS would be inevitable. Cumulatively, over time, this may result in a reduced level of impacts compared to the No Action Alternative.

### **Management Area Prescription 5.41 (Deer and Elk Winter Range)**

See affects to Deer and Elk under the No-Action Alternative. Action Alternative #1 has also retained the overlap of the non-motorized winter use designation within the 5.41 deer and elk winter ranges.

### **Effects of Alternative 2 on Wildlife and MIS**

This alternative would represent the least amount of potential impacts to wildlife, and TES from all of the alternatives. This is because of the reduced size of the motorized area (59,453 acres) and the increase in non-motorized area (44,797 acres). Additionally, the exclusion of motorized use in the municipal watershed on the reservoirs would also be a reduction in potential impacts to wildlife, and TES. Furthermore, non-motorized use in the permitted snowcat area would represent a decrease in potential adverse affects to wildlife, and TES from snowmobiles.

Alternative #2 closes the 5.41 (deer and elk winter ranges) to all motorized use in the winter, and non-motorized use is not encouraged, per the Forest Plan. This reiterates the desired future condition of those 5.41 winter ranges. Non-motorized use is not encouraged due to the reasons stated in the “Management Area Prescription 5.41 (Deer and Elk Winter Range)” section. Alternative #2 is consistent with the Forest Plan in regards to this wildlife issue

Although, this alternative may represent the potential for beneficial impacts to occur to these species, it is still likely that implementation of the proposed action would not result in an increase or decline in population and habitat trends Forest-wide.

### Wildlife Corridor Protection Area

The proposed closure at the east end of Rabbit Ears Pass would be about 4,163 acres closed to all winter recreational use. The designated Muddy Pass Canada lynx linkage zone was designated to provide an east west connection between the Park/Gore Ranges and the Rabbit Ears Range. This would also connect a majority of Lynx Analysis Units (LAU) on the Routt National Forest and the Troublesome/Sheep Mountain area of the Routt National Forest (Figure 1). This linkage zone also serves to facilitate movement between the Arapaho Roosevelt National Forest, Rocky Mountain National Park and with majority of the Routt National Forest. The LAU's directly adjacent to the Muddy Pass Linkage Zone include: Middle Yampa, Rabbit Ears and Sheep Mountain. The National Forest lands on the West side of the Muddy Pass Linkage Zone are in the analysis area for the Winter Recreation Analysis. While the majority of this area directly adjacent to the linkage zone has highly used designated compacted snow routes, a small portion (the proposed Wildlife Corridor Protection Area) does not have compacted snow routes and currently does not receive much dispersed winter recreational use. Additionally, this area is the section where the linkage between the LAU's is most narrow, thus the most secure crossing location.

The proposed Wildlife Corridor Protection Area associated with this alternative is currently being managed to improve Canada lynx and wildlife habitat connectivity. The Colorado Department of Transportation recently installed 2 lynx underpasses in the section of US Highway 40 in the area for the purpose of improving the adjacent Muddy Pass lynx linkage area, reducing the likelihood of ‘take’ with the associated highway project and improving habitat connectivity. As a component of this project the underpasses were signed to reduce winter recreational use that could influence the effectiveness of the underpasses. During the underpass proposal development, there was a concern regarding winter recreation use in the vicinity of the underpasses and therefore potentially reducing the effectiveness of the mitigation.

The existing condition of the affected area (No-Action and Alternative #1) is that the area is currently open to winter motorized and non-motorized use. While winter recreation use of the area has been limited, motorized use has been increasing in the last few years, likely due to the increasing popularity of winter sports in the area. Non-motorized use of the area is limited. In addition to issues related to Canada lynx, winter snowmobile use of the area also has several associated issues including safety and the potential for trespassing on adjacent private lands. Snowmobilers accessing the area cross US Highway 40 in several locations thus increasing the potential for collision with a vehicle

on the highway. Additionally, the affected area is at the edge of the Forest and snowmobile trails on private land have been observed on several occasions.

By incorporating this closure, there would be the greatest likelihood that management actions would not create a barrier to animal winter movement in the area. A closure would further improve the protection of the current investment and intent of the underpasses would be met, and a potential reduction in ‘take’ of a federally listed threatened species may result.

### Direct, Indirect, and Cumulative Effects to MIS

This alternative would represent the least amount of potential impacts to MIS from all of the alternatives. This is because of the reduced size of the motorized area and the increase in non-motorized area. Additionally, the exclusion of motorized use in the municipal watershed on the reservoirs would also be a reduction in potential impacts to the American marten and white-tailed ptarmigan (elk are not present in the winter at the reservoir areas).

### Effects of Alternative 3 on Wildlife and MIS

This alternative would represent the greatest amount of potential impacts to wildlife, and TES from all of the alternatives. This is because of the increase in the overall size of the motorized area (83,735 acres) and the decrease in non-motorized area (24,277 acres).

Mixed winter recreation use (motorized and non-motorized) in the permitted snowcat operating area would again represent a higher potential for negative impacts to wildlife, and TES than in Alternative #'s 1, 2, 4, & the No-Action Alternative. Currently, this represents the existing situation in the analysis area.

Action Alternative #3, bullet statements #3 state, “Allows motorized use of parking at Walton Creek with a motorized trail to 5A and 5B.” This would be inconsistent with the CLCAS (see programmatic planning-standards: #3; “On Federal Lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU unless the designation serves to consolidate unregulated use and improves lynx habitat through a net reduction of compacted snow areas. However, with the overall net reduction and consolidation of unregulated use, there may be opportunities to maintain some flexibility in the newly created motorized portion of the analysis area. Management flexibility may allow this action to occur because of the action would consolidate winter recreation use and improve lynx habitat through a probable net reduction of compacted snow areas. A “trade-off” (a reduction of acres potentially being affected for new designated routes) may be granted for new designation of over-the-snow routes, in this LAU, in association with this project. Specific details would have to be coordinated with and approved by the U.S. Fish and Wildlife Service and the U.S. Forest Service.

Any new developments or construction will need to be analyzed further and implementation will be contingent upon findings (see bullet statement #'s 5 & 6).

This proposed closure at the east end of Rabbit Ears Pass would be about 391 acres closed to all winter recreational use. By incorporating this closure, there would be a smaller likelihood (less than in Action Alternative #'s 2 & 4) that management actions

would provide the least amount of protection for animal winter movement in the area. The protection of the current investment and intent of the underpasses would still be met, and a potential reduction in ‘take’ of a federally listed threatened species also may result.

### Direct, Indirect, and Cumulative Effects to MIS:

This alternative represents the greatest potential for negative impacts to MIS from all of the alternatives, except for elk. This is again based on the greater amount of potential negative impacts caused by motorized use. Elk may benefit from this alternative more than the No Action Alternative because Alternative #3 does not designate non-motorized use in the 5.41 winter range areas. Additionally, the exclusion of motorized use in the municipal watershed on the reservoirs would represent a reduction in potential for negative impacts to the American marten, and the white-tailed ptarmigan (elk are not present in the winter at the reservoir areas). Although, this alternative may represent the greatest potential for negative impacts to occur to these species, it is still likely that implementation of the proposed action would not result in an increase or decline in population and habitat trends Forest-wide.

### Effects of Alternative 4 on Wildlife and MIS

This alternative would represent an intermediate level of potential impacts to wildlife, and TES. This is based on the size of the motorized area (75,082 acres) and non-motorized area (28,002 acres). This alternative represents the second highest amount of motorized acres and the second lowest amount of non-motorized acres potentially influencing wildlife, and TES by the implementation of this project.

Any new developments or construction will need to be analyzed further and implementation will be contingent upon findings. One consideration here is how will an overnight parking area influence the nocturnal nature of the Canada lynx, especially in the close vicinity of the Lynx/Wildlife Corridor Protection Area. An overnight parking area may increase nighttime winter recreation in the area. Most human recreational activities occur during daylight hours. Lynx appear to most active from dusk until dawn. In areas of concentrated winter recreational use, the natural diurnal patterns of human and lynx activity may provide the opportunity to maintain both uses in the area. If an action poses to influence the habitat effectiveness of an area because there are barriers potentially controlling movement, then the quality of those habitats may become compromised. This may negatively influence lynx use in the vicinity of the overnight parking area.

The closure of the Long Lake and Fish Creek Reservoirs to motorized use would result in effects similar to Action Alternative #'s 1, 2, & 3 for wildlife, and TES.

This proposed Wildlife Corridor Protection Area at the east end of Rabbit Ears Pass would be about 1, 649 acres closed to all winter recreational use. By incorporating this closure, there would be an intermediate range of effects (more than Alternative #3, but less than Alternative #2) where management actions could result in a medium range of impacts preventing animal winter movement in the area. The closure would likely still represent a more effective measure to improve habitat connectivity than in the Action Alternatives that address this issue, while still protecting the investment and intent of those underpasses.

Restricted motorized use to designated trails within the permitted snowcat area would result in similar effects to wildlife, and TES as in all Action Alternatives, except Alternative #3.

### Direct, Indirect, and Cumulative Effects to MIS:

This alternative would represent an intermediate level of potential impacts to MIS as compared to the other action alternatives and those listed in the No Action Alternative. Additionally, the exclusion of motorized use in the municipal watershed on the reservoirs would represent a reduction in potential for negative impacts to the American marten, and the white-tailed ptarmigan (elk are not present in the winter at the reservoir areas and Colorado River cutthroat trout are not present in the reservoirs but it's habitat exists). Although, this alternative may represent a middle range for potential negative and beneficial impacts to occur to these species, it is still likely that implementation of the proposed action would not result in an increase or decline in population and habitat trends Forest-wide. Cumulative effects to MIS are similar to the affects listed in the "No Action" Alternative.

### **SUMMARY**

Management actions are not expected to differ considerably in their effects to wildlife or MIS (American marten, white-tailed ptarmigan, and Rocky Mountain elk, Colorado River Cutthroat Trout) when comparing the different Alternatives. Direct, indirect, and cumulative effects to wildlife are very similar in all "action" alternatives. Alternative # 2 represents the least potential for negative impacts to wildlife, MIS, and their habitats. Alternative #3 represents the greatest potential for negative impacts to wildlife, MIS, and their habitats. The exclusion of motorized use on the municipal reservoirs would be appropriate to help ensure the protection of the domestic water sources and would represent a decrease in potential negative effects to wildlife, MIS (except elk) and their habitats. Motorized use restricted to designated trails within permitted snowcat operating area would also represent a net reduction in potential adverse impacts. The adoption of the "Lynx/Wildlife Corridor Protection Area" would maintain consistency with the investment and the intent of the wildlife underpasses located on the East side of Rabbit Ears Pass. The exclusion of a non-motorized designation in the 5.41 deer and elk winter ranges may help to reiterate the potential for human/wildlife conflicts in those areas, and may help to dissuade people from entering into these areas during the important winter months. Any decision that results in a net increase in over-the-snow routes would not be consistent with the intent of the *Canada Lynx Conservation Assessment and Strategy*. However, as mentioned earlier, any increase in designated routes would need to be coordinated with and approved by the US Fish and Wildlife Service and the US Forest Service. Any new developments or construction will need to be specific and analyzed further where implementation will be contingent upon findings.

Consistency determinations with the Routt Forest Plan, as well as other supporting documentation for this wildlife analysis, can be found in the specialist report submitted for this project. This report is a part of the record for this project and is located at the Hahns Peak/Bears Ears Ranger District office in Steamboat Springs, CO.

## **Threatened, Endangered and Sensitive Species (TES)\_\_\_**

### Threatened, Endangered, Candidate and Sensitive Species

The Draft Biological Evaluation and Draft Biological Assessment discloses impacts to those threatened, endangered, candidate and sensitive species that 1) are known or suspected to occur inside the analysis area, 2) have suitable habitat in or near the area and 3) may be effected by the proposed action. The procedure for selecting species for analysis and summary of determinations follow. The full document is available at the Hahns Peak/Bears Ears Ranger District office. All Forest Plan standards and guidelines along with mitigation measures listed in the section on Alternatives in this document will be applied to this project as needed.

#### **Sensitive Species**

Sensitive species for Region 2 are listed on the Region 2 sensitive species list (found at Forest Service Manual 2672.11, R2 FSM Supplement No. 2600-2003-1, Exhibit 01) and is composed of: plants, birds, mammals, amphibians, fish and invertebrates. All of the species on the Region 2 Forest Service sensitive species, and USFWS endangered, threatened, proposed, and candidate species list have been reviewed and considered for potential impacts. The following table includes a list of PETS species likely to occur within or near the analysis area, or with potential habitat in or near the analysis area, or be affected, directly, indirectly or cumulatively by the implementation of an action alternative. PETS species that are not included in this analysis have been eliminated from detailed analyses because they fall into one of the nine following categories:

1. Habitat is completely absent or lacks vital components inside activity areas, making it unsuitable for occupancy or use by the species in question.
2. The action area is located outside the species' current known geographic or elevation range.
3. Proposed activity or disruption effects would occur outside of an animal's seasonal occupancy of otherwise suitable habitat.
4. No elements of a species' primary habitat or life requisites would be changed by the proposal.
5. No environmental changes (disruption of breeding, modification of food web, reduction in cover or shelter structures, loss or degradation of denning/nesting habitat, etc.) created by the proposed action(s) could be identified which would detrimentally affect this species, its individual members or its habitat.
6. Individual animals may be accidental, dispersing, migrating, happenstance, vagrant, nomadic or opportunistic visitors to the habitat(s) impacted by the proposal, but no affiliation or dependence upon these habitat(s) has been shown.
7. A reproductive population of this animal is not present in the vicinity and there remains scientific uncertainty as to whether a reproductive population of this animal ever was resident in Colorado in the recent past.
8. An absence of trapping, hunting, sighting, carcass, photographic or other records in the last 50 years indicates local extirpation of the species is likely, the Colorado

Diversity Information Source (2002) identifies the species as “extirpated” in the county (counties) where the proposal is located, and/or published reports indicate the species is not present locally.

9. Considering the territory or home range size for this animal in comparison to the area extent of the habitat affected by the proposed action, no measurable change in primary prey populations can be ascertained at the landscape level.

**Table 5- USDA Forest Service R2 Sensitive Species, and USFWS Endangered, Threatened, Proposed, and Candidate Species to be analyzed for potential affects caused by the implementation of the proposed action on the Routt National Forest.**

COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT(S)
<b>MAMMALS</b>			
American marten	<i>Martes americana</i>	Sensitive	SF, AS, LPP, RIP
Canada lynx	<i>Lynx canadensis</i>	Threatened	SF, AS, LPP, RIP
Pygmy shrew	<i>Sorex hoyi montanus</i>	Sensitive	SF, LPP, RIP, WET, FM
<b>BIRDS</b>			
White-tailed ptarmigan	<i>Lagopus leucurus</i>	Sensitive	AL, Sub-alpine
<b>AMPHIBIANS &amp; REPTILES</b>			
Boreal western toad	<i>Bufo boreas boreas</i>	Sensitive (USFWS Candidate)	RIP, WET, AQ
Northern leopard frog	<i>Rana pipiens</i>	Sensitive	RIP, WET, AQ
Wood frog	<i>Rana sylvatica</i>	Sensitive	RIP, WET, AQ
<b>FISH</b>			
Colorado River cutthroat trout	<i>Oncorhynchus clarki pleuriticus</i>	Sensitive	AQ, RIP
Mountain Sucker	<i>Catostomus platyrhynchus</i>	Sensitive	AQ
<b>INVERTEBRATES</b>			
Hudsonian emerald dragonfly	<i>Somatochlora hudsonica</i>	Sensitive	

COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT(S)
<b>MOLLUSCS</b>			
Rocky Mountain capshell snail	<i>Acroloxus coloradensis</i>	Sensitive	RIP, WET, AQ (open water)
<b>PLANTS</b>			
Autumn willow	<i>Salix serissima</i>	Sensitive	WET (peatland-7,900 ft)
Bristle-stalk sedge	<i>Carex letalea</i>	Sensitive	WET, SF (peatland 6,500-8120 ft)
Colorado tansyaster	<i>Machaeranthera coloradoensis</i>	Sensitive	FM, MS (dry tundra, upland 8,400-8,500 ft)
Dwarf raspberry	<i>Rubus arcticus ssp. acaulis</i>	Sensitive	LPP, SF, WET, RIP (RIP forest 7,000-9,000 ft)
Hall fescue	<i>Festuca hallii</i>	Sensitive	FM (upland 6,800-11,000 ft)



COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT(S)
<b>MOLLUSCS</b>			
Larchleaf beardtongue	<i>Penstemon laricifolius</i> ssp. <i>exilifolius</i>	Sensitive	MS (upland 7,000-9,000 ft)
<b>COMMON NAME</b>	<b>SCIENTIFIC NAME</b>	<b>STATUS</b>	<b>HABITAT(S)</b>
Leathery grapefern	<i>Botrychium multifidum</i>	Sensitive	RIP, WET, FM (RIP 0-9,000 ft)
Lesser bladderwort	<i>Utricularia minor</i>	Sensitive	WET peatland 6,600-8,600 ft)
Lesser panicled sedge	<b><i>Carex diandra</i></b>	<b>Sensitive</b>	<b>WET, RIP, FM</b>
Livid sedge	<i>Carex livida</i>	Sensitive	RIP, WET (floating peat mats)
Northern or Club spikemoss	<i>Selaginella selaginoides</i>	Sensitive	WET, RIP, FM, SF (RIP 7,700-8,000 ft)
Park milkvetch	<i>Astragalus leptaleus</i>	Sensitive	WET (east of Divide)
Rabbit Ears gilia	<i>Ipomopsis aggregata</i> spp. <i>weberi</i>	Sensitive	AS, FM (upland 6,800-11,000 ft)
Rocky Mountain or Front Range cinquefoil	<i>Potentilla rupicola</i>	Sensitive	MS (upland 6,900-10,500 ft)
Rocky Mountain monkey-flower	<i>Mimulus gemmiparus</i>	Sensitive	SF, AA, WET, RIP (8,500-10,500 ft)
Roundleaf sundew	<i>Drosera rotundifolia</i>	Sensitive	RIP, WET, AQ (acidic H <sub>2</sub> O, floating peat mats)
Sageleaf, Silver, Hoary willow	<i>Salix candida</i>	Sensitive	WET, RIP (8,800-10,600 ft)
Selkirk's or Great-spurred violet	<i>Viola selkirkii</i>	Sensitive	SF, LPP (moist 8,500-9,100 ft)
Simple bog sedge	<i>Kobresia simpliciuscula</i>	Sensitive	WET (peatland 6,000 ft)
Slender cottongrass	<i>Eriophorum gracile</i>	Sensitive	WET, (peatland-6,900-10,500 ft)
Slender or Narrowleaf moonwort	<i>Botrychium lineare</i>	Sensitive (USFWS Candidate)	RIP, SF, LPP, FM (7,900-9,500 ft)
Whitebristle or Altai cottongrass	<i>Eriophorum altaicum</i> var. <i>neogaeum</i>	Sensitive	WET (peatland-9,500-14,000 ft)
Yellow lady's slipper	<i>Cypripedium parviflorum</i>	Sensitive	RIP, WET, SF, LPP, AA (7,400-8,500 ft)

**Key:** *SF*=Spruce/Fir; *AS*=Aspen; *LPP*=Lodgepole Pine; *MS*= Mountain Shrub; *FM*=Forest Meadows; *AL*=Alpine; *RIP*=Riparian; *WET*=Wetland; *AQ*=Aquatic; *RO*=Rock/Cliff/Cave/Canyon/Mines; *PP*=Ponderosa Pine

**MAMMALS** - implementation of the activities identified in the proposed action “may impact individuals, but is not likely to cause a trend toward federal listing or a loss of viability”.

**BIRDS**-implementation of the activities identified in the proposed action “may impact individuals, but is not likely to cause a trend toward federal listing or a loss of viability”.

**AMPHIBIANS**-implementation of the activities identified in the proposed action “may impact individuals, but is not likely to cause a trend toward federal listing or a loss of viability”.

**FISH**-implementation of the activities identified in the proposed action “may impact individuals, but is not likely to cause a trend toward federal listing or a loss of viability”.

**INVERTEBRATES**-implementation of the activities identified in the proposed action “may impact individuals, but is not likely to cause a trend toward federal listing or a loss of viability”.

**MOLLUSCS**-implementation of the activities identified in the proposed action “may impact individuals, but is not likely to cause a trend toward federal listing or a loss of viability”.

**PLANTS**-implementation of the activities identified in the proposed action “may impact individuals, but is not likely to cause a trend toward federal listing or a loss of viability”.

### **Monitoring:**

Negative impacts to fen or wetland obligate plant species have been identified as potentially occurring in the analysis area. The true extent of the effects caused by winter recreational activities to these species and their habitats is unknown. Different plant species may respond differently to various forms of disturbances. Monitoring of the identified fens and associated plant species locations is necessary to assess the types and levels of disturbances. Furthermore, the monitoring should be long enough to demonstrate whether populations thrive, endure or decline in the presence of human-caused disturbances. If specific impacts from winter recreation to threatened, endangered, & sensitive species and their habitats are identified, then future management will be adjusted as necessary to mitigate those impacts.

*Monitor known occurrences of sensitive plant species and fens for up to five years to assess impacts from winter recreation use.*

Since there is very little known about interactions among disjunct populations, it is difficult to predict how effects to a single population might influence the status of other populations.

## Endangered, Threatened and Candidate Species

### **LEGAL AND ADMINISTRATIVE FRAMEWORK**

Federally listed threatened and endangered species are those plant and animal species formally listed by the U.S. Fish and Wildlife Service under authority of the Endangered Species Act of 1973 (Public Law 93-205), as amended. An endangered species is defined as one, which is "in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as one "that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range..." (Endangered Species Act of 1973, as amended).

#### **Consultation With The U.S. Fish And Wildlife Service (Usfws)**

Interagency cooperation between the Forest Service (or other federal agency) and the USFWS, regarding proposed, threatened, or endangered species, is described in Section 7 of the Endangered Species Act. Kurt Broderdorp of the US Fish and Wildlife Service was contacted on 5-14-2004 to initiate informal consultation on the project.

The U.S. Fish and Wildlife Service (USFWS), in a letter to the Routt National Forest (dated February 6, 2004, from Allan R. Pfister, Western Colorado Supervisor for the Grand Junction Field Office, USFWS), provided the Forest Service with a list of Threatened, Endangered, Candidate and Proposed Species that might occur within the vicinity of influence of the Routt National Forest. The seven federally listed species referenced included: bald eagle (*Haliaeetus leucocephalus*), bonytail (*Gila elegans*), Canada lynx (*Felis lynx canadensis*), Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), pallid sturgeon (*Scaphirhynchus albus*), razorback sucker (*Xyrauchen texanus*). Three Federal "Candidate" species, the boreal toad (*Bufo boreas boreas*), yellow-billed cuckoo (*Coccyzus americanus*) and slender moonwort (*Botrychium lineare*) were identified in the USFWS letter. "Candidate" species are candidates for official listing as threatened or endangered species [67 FR, Vol. 67, No. 114 (June 13, 2002)]. While these species presently have no legal protection under the Endangered Species Act, it is within the spirit of the Act to consider project impacts to potential candidate species. In this case, the boreal toad, slender moonwort, and the Western yellow-bellied cuckoo were discussed in the Biological Evaluation because they are also Region 2 Forest Service "Sensitive" species.

*Summary of federally listed species being evaluated for potential affects by projects that may occur in the analysis area or that might be affected directly, indirectly, or cumulatively by the proposed action on the Routt National Forest.*

- Bald eagle (*Haliaeetus leucocephalus*) – "Threatened"
- Bonytail (*Gila elegans*) – "Endangered"
- Boreal Western toad (*Bufo boreas boreas*) – "Candidate"
- Canada lynx (*Lynx canadensis*) - "Threatened"
- Colorado pikeminnow (*Ptychocheilus lucius*) – "Endangered"

- Humpback chub (*Gila cypha*) – “Endangered”
- Pallid sturgeon (*Scaphirhynchus albus*) – “Endangered”
- Razorback sucker (*Xyrauchen texanus*) – “Endangered”
- Slender moonwort (*Botrychium lineare*) – “Candidate”
- Western yellow-billed cuckoo (*Coccyzus americanus*) – “Candidate”

### **Species Analysis And Habitat Summaries**

This Biological Assessment will address potential affects to the following species because they may have potential to occur or potential to be impacted by the implementation of this proposed action. As stated above, the boreal toad, slender moonwort, and the Western yellow-bellied cuckoo are discussed in the Biological Evaluation because they are Region 2 Forest Service “Sensitive” species.

#### **Bald Eagle (*Haliaeetus leucocephalus*) Federal Status: Threatened**

Bald eagle winter habitat is generally associated with areas of open water where fishes and/or waterfowl congregate. Wintering bald eagles occupy unfrozen portions of lakes and free flowing rivers and may occupy upland areas where ungulate carrion, game birds and lagomorphs are. Although winter roosting habitat is not necessarily close to water or of close proximity to food sources, the availability of an abundant source of food (usually associated with open water or ungulate carrion), of foraging perches, and of secure night roost sites away from human activities are important habitat components (MBEWG 1994). Preferred habitat includes a protected microclimate that provides shelter from harsh weather and is characterized by tall trees that extend above the forest canopy and locations that provide clear views and open flight paths (Stalmaster 1987).

On the Routt National Forest there are no known bald eagle nest sites. Bald eagles have been occasionally observed on the Forest during the spring, summer and fall seasons. The primary habitat is the cottonwood riparian areas associated with the Yampa and Platte river systems and its major tributaries in lower elevational areas off Forest. Occasionally bald eagles will use lakes, reservoirs and major river/stream courses on the Forest as feeding areas. Eagles are expanding along both the Yampa and Little Snake drainage. New nests appear to be the product of successful breeding of resident bald eagles. The Colorado Division of Wildlife is expecting them to continue to expand their range (Craig 1997). Bald eagles have been documented nesting above 10,000 feet in some areas (Craig 1997).

Bald eagles have been sighted foraging on National Forest Lands during breeding seasons. Nesting eagles have been confirmed on adjacent private lands, but there are no confirmed bald eagles nesting on the Routt National Forest. Winter foraging and roosting is suspected in the lower elevations on the Forest. Implementation of the proposed action should not affect bald eagles or potential foraging habitat for bald eagles. Therefore, there will be “**NO EFFECT**” to the bald eagle as a result of the implementation of the project.

The **Colorado pikeminnow (*Ptychocheilus lucius*)** Federal Status: Endangered, the **Bonytail (*Gila elegans*)** Federal Status: Endangered, the **Humpback chub (*Gila***

*cypha*) Federal Status: Endangered, and the **Razorback sucker** (*Xyrauchen texanus*) Federal Status: Endangered, and the **Pallid sturgeon** (*Scaphirhynchus albus*) do not occur nor does the preferred habitat for any of these species exist within the analysis area. No anticipated negative affects to these downriver fish species are expected. One of the primary causes for decline of these five endangered fish species is a result of water depletion from the Colorado and Platte River and its tributaries. There are no water depletions from the Upper Colorado River System nor the North Platte River System associated with the implementation of this proposed action. Therefore, implementation of the proposed action will have “**NO EFFECT**” to these fish species.

**North American Lynx (*Lynx canadensis*) Federal Status: Threatened.**

The primary range of the North American lynx (commonly referred to as the Canada lynx) is found in the boreal forests of Alaska and Canada. The southern Rocky Mountains represent the southern margin of the lynx's geographic range. The lynx is considered historically rare in Colorado. Reintroduction efforts by the Colorado Division of Wildlife have released 96 individuals into Colorado since 1998. More lynx releases are scheduled in 2004, 37 individuals, 50 more lynx are scheduled for release in 2005, and up to 15 between 2006-2008. Human induced mortality is the most important factor for lynx populations when they are declining in their population cycles. As a result of the isolated nature of the Colorado portion of the lynx's historical range, natural emigration would be very difficult for dispersing animals (Seidel et al. 1998).

Historically, lynx were found at the higher elevations throughout the central portion of Colorado, although it was never abundant. Lynx habitat is generally described as climax boreal forest with a dense undercover of thickets and windfalls. Lynx require early successional forests that contain cover for kittens (especially deadfalls) and for denning. Although lynx in the southern Rocky Mountains likely doesn't depend as much on snowshoe hare, the primary prey of the lynx in North America is the snowshoe hare, especially during the winter months. During the summer, grouse and small mammal species are likely taken, but snowshoe hares are typically lynx's main prey (USDA Forest Service 1994).

**Description of the LAUs**

An LAU, or Lynx Analysis Unit, is an analysis unit upon which direct, indirect, and cumulative effects analyses are performed. It is a tool that provides a constant for comparison of effects, through time. While an LAU is not intended to depict an actual lynx home range, the scale of an LAU approximates the size of area needed by an individual lynx to meet its life requisites.

To understand the significance of vegetation changes that would occur from an action, it is first necessary to identify habitat types within the LAU. To assign vegetation stands to a lynx habitat type, a model was developed. The habitat model uses defined parameters to assign each segment of the landscape to 1 of 4 lynx habitat types or to non-habitat (Skorkowsky 2003). Like areas of suitable lynx habitat (*e.g.*, denning, winter forage, other, and currently unsuitable) were distinguished using

vegetation and physical feature records from the Resource Information System database and then mapped using a geographic information system. Any area not found suitable for lynx use was labeled non-habitat and is not considered further. The 5 habitat types are defined as follows:

1. *Denning Habitat* – Forest areas used during parturition and rearing of young until they are mobile. The common component appears to be large amounts of coarse woody debris. To determine acres of denning habitat on the Routt N. F., the model selected spruce/fir and Douglas-fir forests having a “large” or “very large” tree size *and* 60 percent or greater canopy closure as well as lodgepole pine forests having a “large” or “very large” tree size *and* 70 percent canopy closure on northwest, north and north east aspects only.
2. *Winter Foraging Habitat* – This is forest that supports primary prey (snowshoe hare) and/or important alternate prey (especially red squirrel) for lynx. To determine acres of winter foraging habitat on the Routt N. F., the model selected spruce/fir and Douglas-fir forests having “small,” “medium,” “large” and “very large” tree size *and* 50 percent or greater canopy closure as well as lodgepole pine stands having a “small” tree size with 60 percent or greater canopy closure.
3. *Other Lynx Habitat* – This lynx habitat combines “summer travel,” “winter travel,” “summer foraging” and “alternate prey” habitat categories. A variety of forest types is included in this type.
4. *Habitat Currently in Unsuitable Condition* – Areas now in an early successional stage, usually due to a recent fire or timber cutting, where vegetation has not developed sufficiently to support snowshoe hares during all seasons.
5. *Non-habitat* – Areas such as lakes and tundra that do not support snowshoe hares and would not be capable of providing lynx habitat ever.

The 2004 Routt Winter Recreation Management Environmental Analysis project area resides predominantly within the Middle Yampa LAU; approximately 61% of the analysis area occurs in this LAU. The analysis area also resides within the Rabbit Ears LAU (~24%), the Lower Elk River LAU (~11%), and the Red Canyon LAU (~4%). The effects analysis will demonstrate how many acres of lynx habitat will be exposed to motorized use and then to non-motorized use. The acres will be separated into the different lynx habitat types and separated by motorized vs. non-motorized acres. In summary, this analysis will demonstrate how the proposed action and the alternatives will influence the different types of lynx habitats in the analysis area. There are not many considerable differences between the proposed alternatives and the current existing use and how those uses would affect lynx and their habitats. The main differences would transpire from the different suggested use boundaries and total acres of differing winter recreational uses. Because the different uses would still be occurring in the analysis area, effects to lynx and their habitats would remain similar to those current uses that exist today. In all cases, the proposed action (Alternative #1) will be the same as the “No Action” Alternative. The only difference is the “Suggested Use” boundaries would become permanent enforceable boundaries. There are no differences in total area, boundary lines, or acreages.

## **General Description**

The Middle Yampa, the Lower Elk River, the Rabbit Ears, and the Red Canyon Lynx Analysis Units are located in the south-central portion of the Routt National Forest. These LAUs have many diverse recreational opportunities. High levels of urban/wildland interface and development are occurring on the private lands in a steadfast manner adjacent to the Middle Yampa and Lower Elk River LAUs. They consist of near-capacity winter use along Hwy 40. This LAU encompasses the world-class downhill ski resort, the Steamboat Ski Area. It consists of low motorized travel-way densities where access to National Forest Lands can be found by the Buffalo Pass Road (FDR 60), and Fish Creek Falls Road (FDR 320). The Buffalo Pass and Rabbit Ears Pass areas have the highest level of winter motorized and non-motorized recreational use on the Forest. Currently the Forest Service permits several recreational outfitters including hunting and snowmobiling outfitters. The city of Steamboat Springs domestic water is supplied via these LAUs. Electronic sites and a major utility corridor running from west (Hayden, Colorado) to east are also located here.

### Description of the Middle Yampa LAU

The Middle Yampa is located in the central portion of the Routt National Forest. This LAU is 75,486 acres in size and contains lynx habitat as described in the table below.

**Table 6 - Lynx Habitat, by Acreage, in the Middle Yampa LAU**

Middle Yampa LAU				
Habitat	National Forest	Private and State	BLM, State & Private	
Total Acres 75,486	NF Portion of LAU	NF Portion of LAU	BLM Portion of LAU	Total LAU
	28,696	NA	NA	5,779
Denning Habitat	24,297	NA	NA	1,380
Other Habitat	26,819	2,345	NA	29,164
Non-Habitat	12,685	904	NA	13,589
Unsuitable Habitat	2,340	**	NA	2,340
WinDen *	22,917	107	NA	23,024
% Currently Unsuitable	3.95%	@	NA	@

<sup>^</sup> - WinDen represents double counted acres on Forest Service lands (i.e. lands that are considered both denning and winter foraging habitats). On private, state or BLM lands, winter foraging and denning habitats were not defined independently and thus WinDen identifies the total estimated acres in winter foraging and denning habitat on those lands.

\* - Other Habitat incorporates summer, travel, and alternative prey species habitats.

\*\* - Currently unable to calculate based on available information. Data is outside the scope or responsibility of the Forest Service.

@ - Unable to properly calculate without the unsuitable data (\*\*).

### Past, Current and Planned Federal Land Management Activities

While some portions of the Middle Yampa LAU have been logged in the past, historic logging activity would be considered low for this LAU. All of the past

logging has occurred in ‘1<sup>st</sup>’ growth or ‘virgin’ timber stands. Approximately 50 years ago there was a high level of beetle killed timber salvage occurring within the LAU. Within the past 10 years there has been a moderate level of timber harvest in the LAU. In the LAU timber management in the last 10 years has modified 2319 acres or 4.1%.

There are several grazing allotments within the LAU for both cattle and sheep. This area has been grazed consistently by domestic ungulates for over 100 years. The LAU contains the Buffalo Pass and Rabbit Ears Allotments.

The Middle Yampa LAU has the highest levels of recreational activity occurring on the Forest. This LAU is in close proximity to the resort town of Steamboat Springs, has one large ski resort and very high level of recreational activity during all seasons. This LAU has a high level of urban/wildland interface and development is occurring on the private lands a tremendous rate. The Buffalo Pass and Rabbit Ears Pass areas have the highest level of winter motorized and non-motorized recreational use on the Forest. Currently the Forest Service permits several recreational outfitters including hunting and snowmobiling outfitters.

In addition to the 2004 Winter Recreation Environmental Assessment, there are several recreational related NEPA analyses occurring in this geographic area. This includes: Bark Beetle EIS implementation, ongoing ski area development and recreational facilities development. The only other large scale project occurring within this LAU is the realignment of portions of US Highway 40 on the East side of Rabbit Ears Pass and the Dry Lake Fuels Analysis.

### Potential Cumulative Effects Associated with Non-Federal Actions

There are no anticipated cumulative effects to lynx as a result of non-Federal actions occurring within this LAU.

#### Summary of Alternatives

Below are the summaries of how each different alternative, other than the “No-Action” and “Proposed Action” (Alternative #1), affect total acres in each lynx habitat type in the Middle Yampa LAU.

**Table 7 -Lynx habitat affected by the proposed boundaries in Alternative #1 in the Middle Yampa LAU**

Habitat	Motorized Acres - Middle Yampa LAU			
Total Acres – 46,422	ALT. 1	ALT. 2	ALT. 3	ALT. 4
Denning Habitat	15,972	12,658	17,829	16,567
<b>Other Habitat*</b>	15,510	11,669	16,407	15,736
Non-Habitat	9,671	6,406	11,342	9,783
<b>Unsuitable Habitat</b>	1,665	1,641	1,666	1,665
<b>Total Acres</b>	48,212	37,059	52,832	49,145



The “No-Action” Alternative is the same acreage and habitats represented in Alternative #1 (Proposed Action).

### Description of the Rabbit Ears LAU

The Rabbit Ears LAU is located in the Central portion of the Routt National Forest. This LAU is 46,422 acres in size and contains lynx habitat as described in the table below.

**Table 8 - Lynx Habitat, by Acreage, in the Rabbit Ears LAU**

<b>Rabbit Ears LAU</b>				
<b>Habitat</b>	<b>National Forest</b>	<b>Private and State</b>	<b>BLM, State &amp; Private</b>	
Total Acres 46,422	NF Portion of LAU	NF Portion of LAU	BLM Portion of LAU	Total LAU
	13,050	NA	NA	3,960
Denning Habitat	10,090	NA	NA	1,000
Other Habitat	23,945	1,386	NA	25,331
Non-Habitat	3,999	40	NA	4,039
Unsuitable Habitat	2,567	**	NA	2,567
WinDen *	9,090	33	NA	2,567
% Currently Unsuitable	6.33%	@	NA	9,123

^ - WinDen represents double counted acres on Forest Service lands (i.e. lands that are considered both denning and winter foraging habitats). On private, state or BLM lands, winter foraging and denning habitats were not defined independently and thus WinDen identifies the total estimated acres in winter foraging and denning habitat on those lands.

\* - Other Habitat incorporates summer, travel, and alternative prey species habitats.

\*\* - Currently unable to calculate based on available information. Data is outside the scope or responsibility of the Forest Service.

@ - Unable to properly calculate without the unsuitable data (\*\*).

### Past, Current and Planned Federal Land Management Activities

The Rabbit Ears LAU has had very little past timber management. Within the past 10 years there has been 64 acres of timber harvest in the spruce-fir, lodgepole pine or aspen cover type. Timber management has influenced 0.2% of the available lynx habitat in the LAU in the last 10 years.

There are grazing allotments within the LAU, including the Rabbit Ears allotment. This area has been grazed consistently by domestic ungulates for over 100 years.

The Rabbit Ears LAU has a high level of recreational activity occurring. This LAU is in close proximity to the resort town of Steamboat Springs and very high level of recreational activity during all seasons. The Rabbit Ears Pass area has the highest level of winter motorized and non-motorized recreational use on the Forest.

Currently the Forest Service permits several recreational outfitters including hunting and snowmobiling outfitters. Recreational uses include: driving, hiking, biking, horseback riding, hunting, snowmobiling and gathering firewood. Fall hunting

activity is considered moderate to high in this area. Winter snowmobile activity is considered high.

In addition to the 2004 Winter Recreation Environmental Assessment, the only other NEPA projects that are ongoing include the Bark Beetle EIS implementation, the Rabbit Ears grazing allotment management plan, and the US Highway 40 re-alignment project.

### Potential Cumulative Effects Associated with Non-Federal Actions

There are no anticipated cumulative effects to lynx as a result of non-Federal actions occurring within this LAU.

#### Summary of Alternatives

Below are the summaries of how each different alternative, other than the “No-Action” and “Proposed Action” (Alternative #1), affect total acres in each lynx habitat type in the Rabbit Ears LAU.

**Table 9 - Lynx habitat affected by the proposed motorized boundaries in Alternatives 1 through 4 in the Rabbit Ears LAU**

Habitat	Motorized Acres - Rabbit Ears LAU			
Total Acres – 46,422	ALT. 1	ALT. 2	ALT. 3	ALT. 4
Denning Habitat	2,662	2,416	2,664	2,662
<b>Other Habitat*</b>	9,224	8,545	9,260	9,224
Non-Habitat	2,534	2,337	2,534	2,534
<b>Unsuitable Habitat</b>	228	224	229	228
<b>Total Acres</b>	16,510	15,064	16,550	16,510

The “No-Action” Alternative is the same acreage and habitats represented in Alternative #1 (Proposed Action).

### Description of the Lower Elk River LAU

The Lower Elk River LAU is located in the North-central portion of the Routt National Forest. This LAU is 77,974 acres in size and contains lynx habitat as described in the table below.

**Table 10 - Lynx Habitat, by Acreage, in the Lower Elk River LAU**

Lower Elk River LAU				
Habitat	National Forest	Private ad State	BLM, State & Private	
Total Acres 77,974	NF Portion of LAU	NF Portionof LAU	BLM Portion of LAU	Total LAU
	19,068	NA	NA	7,296
Denning Habitat	16,113	NA	NA	4,341

Lower Elk River LAU				
Habitat	National Forest	Private ad State	BLM, State & Private	
Total Acres 77,974	NF Portion of LAU	NF Portion of LAU	BLM Portion of LAU	Total LAU
Other Habitat	35,492	5,343	160	40,995
Non-Habitat	8,460	1,879	0	10,339
Unsuitable Habitat	2,755	**	**	2,755
WinDen *	11,772	113	211	12,096
% Currently Unsuitable	4.47%	@	@	@

^ - WinDen represents double counted acres on Forest Service lands (i.e. lands that are considered both denning and winter foraging habitats). On private, state or BLM lands, winter foraging and denning habitats were not defined independently and thus WinDen identifies the total estimated acres in winter foraging and denning habitat on those lands.

\* - Other Habitat incorporates summer, travel, and alternative prey species habitats.

\*\* - Currently unable to calculate based on available information. Data is outside the scope or responsibility of the Forest Service.

@ - Unable to properly calculate without the unsuitable data (\*\*).

### **Past, Current and Planned Federal Land Management Activities**

The Lower Elk River LAU has had very little logging activity. Within the past 10 years there has been 5 acres of timber harvest. There are currently no timber sales planned or being implemented in this LAU.

This LAU contains grazing allotments. This area has been grazed consistently by domestic ungulates for over 100 years.

This area has been historically used by the general public for outdoor recreation. There are few roads, but many miles of non-motorized trails. Recreational uses include: hiking, biking, horseback riding and hunting. Fall hunting activity is considered moderate in this area. Winter snowmobile activity is essentially non-existent due to restriction implemented on big game winter range. Currently the Forest Service permits several recreational outfitters. Summer and fall recreational use is considered to occur at moderate levels.

In addition to the 2004 Winter Recreation Environmental Assessment, ongoing projects include the implementation of the Bark Beetle EIS.

### **Potential Cumulative Effects Associated with Non-Federal Actions**

The Big Creek Ridge Prescribed Fire Partnership Project, the Big Creek Ridge Proposed Land Exchange (currently under review in this LAU), and the Mann Land Exchange are may contribute to the cumulative impacts to lynx as a result of non-Federal actions occurring within this LAU.

### **Summary of Alternatives**

Below are the summaries of how each different alternative, other than the “No-Action” and “Proposed Action” (Alternative #1), affect total acres in each lynx habitat type in the Lower Elk River LAU.

The “No-Action” Alternative is the same acreage and habitats represented in Alternative #1 (Proposed Action)..

**Table 11- Lynx habitat affected by proposed motorized boundaries in Action Alternatives 1 through 4 in the Lower Elk River LAU by habitat type.**

Habitat	Motorized Acres - Lower Elk River LAU			
Total Acres – 75,486	ALT. 1	ALT. 2	ALT. 3	ALT. 4
Denning Habitat	2,883	2,096	2,881	2,881
Other Habitat*	6,089	4,162	6,085	6,088
Non-Habitat	1,038	457	1,038	1,038
Unsuitable Habitat	19	10	19	19
Total Acres	10,500	7,323	10,494	10,498

### **Description of the Red Canyon LAU**

The Red Canyon LAU is located in the Northeast portion of the Routt National Forest. This LAU is 80,615 acres in size and contains lynx habitat as described in the table below.

**Table 12 - Lynx Habitat, by Acreage, in the Red Canyon LAU**

Habitat	National Forest	Private and State	BLM, State & Private	
Total Acres 80,615	NF Portion of LAU	NF Portion of LAU	BLM Portion of LAU	Total LAU
	28,311	NA	NA	9,009
Denning Habitat	22,787	NA	NA	3,485
Other Habitat	22,463	177	NA	22,640
Non-Habitat	24,563	153	NA	24,689
Unsuitable Habitat	1,593	**	NA	1,593
WinDen *	19,302	32	NA	19,334
% Currently Unsuitable	2.85%	@	NA	@

^ - WinDen represents double counted acres on Forest Service lands (i.e. lands that are considered both denning and winter foraging habitats). On private, state or BLM lands, winter foraging and denning habitats were not defined independently and thus WinDen identifies the total estimated acres in winter foraging and denning habitat on those lands.

\* - Other Habitat incorporates summer, travel, and alternative prey species habitats.

\*\* - Currently unable to calculate based on available information. Data is outside the scope or responsibility of the Forest Service.  
 @ - Unable to properly calculate without the unsuitable data (\*\*).

## Past, Current and Planned Federal Land Management Activities

The Red Canyon LAU has very little history of logging activity. Within the past 10 years there has been no timber harvest. No timber harvest is currently planned for this LAU.

There are four grazing allotments within the LAU. This area has been grazed consistently by domestic ungulates for over 100 years.

This area has been historically used by the general public for outdoor recreation. Recreational uses include: driving, hiking, biking, horseback riding, hunting, snowmobiling and gathering firewood. Fall hunting activity is considered moderate in this area. Winter recreational activity is considered low. Summer recreation is considered high, as the LAU has several trailheads for backcountry motorized and non-motorized use.

In addition to the 2004 Winter Recreation Environmental Assessment, ongoing projects include the implantation of the Bark Beetle EIS. There are no other projects NEPA being developed within this LAU.

## Potential Cumulative Effects Associated with Non-Federal Actions

There are no anticipated cumulative effects to lynx as a result of non-Federal actions occurring within this LAU.

## Summary of Alternatives

Below are the summaries of how each different alternative, other than the “No-Action” and “Proposed Action” (Alternative #1), affect total acres in each lynx habitat type in the Red Canyon LAU.

**Table 13- Lynx habitat affected by the proposed motorized boundaries in Action Alternatives 1 through 4 in the Red Canyon LAU**

Habitat type	Motorized Acres - Red Canyon LAU			
Total Acres – 75,486	ALT 1	ALT 2	ALT 3	ALT 4
Denning Habitat	2,883	754	764	764
Other Habitat*	6,089	1,909	1,976	1,976
Non-Habitat	1,038	147	147	147
Unsuitable Habitat	19	249	250	250
Total Acres	10,500	4,166	4,247	4,247

The “No-Action” Alternative is the same acreage and habitats represented in Alternative #1 (Proposed Action).

### **Analysis of Alternatives**

While the alternatives do not depict large differences in potential impacts to lynx, it may be inferred that motorized use has the greatest potential to compact snow. The larger the area designated as “motorized use,” the greater potential for snow compaction would occur, thus potentially increasing competitor opportunities influencing the lynx’s prey base. Compaction resulting from non-motorized use can have similar implications but it is assumed that backcountry skiers and snowshoers will not compact as large of an area, as often, as motorized use. Subsequently, alternatives with the largest amount of non-motorized could represent the least amount of impacts caused to lynx by snow compaction. On the other hand, when you look at the additive affects from both motorized and non-motorized uses, the alternative with the least amount of total winter recreation use (least amount of snow compaction), over the least amount of acres, would be most appropriate for selecting for the management of lynx.

**Table 14- Summary of Affected Acres by Alternative (Alternative #1 and the No Action are the same)**

<b>Acres/Miles</b>	<b>ALT 1</b>	<b>ALT 2</b>	<b>ALT 3</b>	<b>ALT 4</b>
Motorized Acres	74,543	59,453	83,735	73,824
Non-motorized Acres	31,582	44,797	24,277	28,003
5.41 (Deer and Elk Winter Range)	0	2,650	2,650	2,650
Snowcat Operating Area	4,930	0	0	4,930
Cross Country Ski Trail (miles)	33.03	33.03	33.03	33.03
Groomed Snowmobile Trails (miles)	70.61	70.61	70.61	70.61
Un-groomed Snowmobile Trails (miles)	22.21	18.58	23.25	22.21
Lynx/Wildlife Corridor Protection Area	0	4,163	391	1,649

The alternative with the least amount of motorized and non-motorized use would then be the best selection for minimizing impacts to lynx. However, the exclusion of all winter use is certainly not a feasible option. In this case, alternative #4 would represent the least amount of affected lynx acres impacted from snow compaction (103,475 non-motorized and motorized acres). Alternative #2 would represent the least amount of compaction caused by motorized use, but has the highest impact from non-motorized use. Alternative #3 represents the greatest potential for impacts caused by motorized use and the least amount of potential impacts caused by non-motorized use.

A pattern emerges here where each alternative has the potential for impacts with some greater than others in different respects for potential negative impacts. With the designation of an enforceable “non-motorized use area”, it would actually be a beneficial impact to lynx on that area, no matter what the size of that area is. This is

based on the principle that the decision would actually consolidate unregulated use and improves lynx habitat through a net reduction of compacted snow areas. This action will meet the programmatic standard #1, pg 7-9, of the CLCAS. However, ensuing discussions with Kurt Broderdorp of the U.S. Fish and Wildlife Service deduced that the overall decision would likely negate the beneficial effect in that area incrementally creating greater impacts to lynx and lynx habitat in the “motorized-use” area. This would be based upon the increasing winter recreational use in the area and the increasing popularity of snowmobiling in general.

Probably the most important habitat characteristic of lynx to consider is the seasonal use of the lynx in the analysis area. Any adverse affect from any form of winter recreational use would likely have the greatest impact to lynx winter foraging habitat.

**Table 15- Summary of Lynx Winter Foraging Habitat by Alternative**

<b>Use - Habitat</b>	<b>Motorized</b>	<b>Non-Motorized</b>	<b>Total</b>
Alternative 1 – Winter Forage	30,422	11,525	41,947
Alternative 2 – Winter Forage	25,215	16,525	41,740
Alternative 3 – Winter Forage	32,474	9,261	41,735
Alternative 4 – Winter Forage	31,015	10,750	41,765

Exact total differences in acres of winter forage habitat are similar, but the types of uses are the important aspect because they represent different potentials for impacts. Alternative #3 has the greatest potential to impact lynx winter foraging habitat. This again, is based upon the potential for snow machines to cover more ground in shorter time periods and compact more snow. Alternative #2 would have the least amount of snow compaction occur from motorized use.

### **Behavioral Response to Humans**

One consideration to note is the diversity of behavioral responses to human activities. There are many conflicting reports on how the Canada lynx reacts to human presence and activities in their habitats. “To date, most investigations of lynx have not shown human presence to influence how lynx use the landscape (Aubrey et al. 2000). Staples (1995) described lynx as being generally tolerant of humans. Other anecdotal reports also suggest that lynx are not displaced by human presence, including moderate levels of snowmobile traffic (Mowat et al. 2000, J. Squires pers. comm. 1999, G. Byrne pers. comm. 1999) and ski area activities (Roe et al. 1999” (Skorkowsky 2000). An exception to this may be activities around den sites that may cause abandonment of the site, possibly affecting kitten survival (Ruggerio et al. 2000). Anecdotal information (Roe et al. 1999, J. Squirres pers. comm. 1999, G. Byrne pers. comm.. 1999) suggests that individual lynx behave differently in response to the presence of humans and their associated activities, depending on the environment setting where the interaction occurred. Intuitively we assume that some

threshold exists where human disturbance becomes so intense that it precludes use of an area by lynx” (Ruediger et al. 2000).

A variety of factors may influence the effects of recreation on lynx. These are as follows:

- Type and quality of lynx habitat in which the activity occurs.
- Time of year activity occurs.
- Time of day activity occurs.
- Type of activity.
- Pattern of activity.
- Intensity and frequency of activity.

“Dispersed recreational uses and activities, such as snowmobiling, cross-country skiing and snowshoeing, are increasing within higher elevation environments. Advances in snowmobile technology are allowing the public to operate these new machines in deeper snow and rougher terrain than many of the older models. Dispersed recreation activities seldom result in a direct loss of habitat, but are more likely to impart indirect effects (such as competition resulting from snow compaction. Snow compaction on roads or trails (or concentrated use play areas) may allow competing carnivores, such as coyotes and mountain lions, access into lynx habitat. In the absence of roads and trails, snow depths and snow conditions normally limit the mobility of these other predators during mid-winter” (Ruediger et al. 2000).

“As mentioned earlier, snowmobile use across the United States has increased substantially over the last 20-30 years. The number of Forest visitors exploring undeveloped backcountry areas is increasing. In winter, dispersed recreation activities may be associated with huts, parking areas (snowmobiling, snowboarding, and cross country skiing), roadside rest areas, and other developed recreational facilities. Most traditional dispersed recreational uses occurred during daylight hours. However, nighttime activities and overnight trips are becoming more commonplace, possibly increasing potential for disturbance at night when lynx had been more secure” (Ruediger et al. 2000). In conclusion, it is difficult to ascertain the true extent of impacts to lynx and lynx habitats. However, with the increase in winter recreational use, greater potential for adverse impacts becomes more evident.

### **Conservation Measures:**

The Canada Lynx Conservation Assessment and Strategy (Ruediger et al. 2000) provides Programmatic and Project Planning Objectives and Standards regarding recreation, Forest/Backcountry Roads and Trails competition, and predation as influenced by human activities, highways, and ski areas/large resorts and associated activities management in detail to provide a consistent and effective approach to conserve the Canada Lynx and its habitat on Federal Lands in the continuous United States. The following conservation measures are intended to conserve the lynx, and to reduce or eliminate adverse effects from the spectrum of management activities on federal lands. These measures are provided to assist federal agencies in seeking opportunities to benefit lynx and to help avoid negative impacts through the



thoughtful planning of activities. Plans that incorporate them, and projects that implement them, are generally not expected to have adverse effects to lynx, and implementation of these measures across the range of lynx is expected to lead to conservation of the species (Ruediger et al. 2000). All conservation measures listed below are pertinent to winter recreation activities and the 2004 Routt Winter Recreation Assessment and Management and Analysis, specifically.

### **Conservation Measures Addressing Risk Factors Affecting Lynx Productivity**

#### *Recreation Management:*

##### Programmatic planning-objectives:

1. Plan for and manage recreational activities to protect the integrity of lynx habitat, consider as a minimum the following:
  - a) Minimize snow compaction in lynx habitat.
  - b) Concentrate recreational activities within existing developed areas, rather than developing new recreational areas in lynx habitat.
  - c) On federal lands, ensure that development or expansion of developed recreation sites or ski area and adjacent lands address landscape connectivity and lynx habitat needs.

##### Programmatic planning-standards:

1. On Federal Lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU unless the designation serves to consolidate unregulated use and improves lynx habitat through a net reduction of compacted snow areas.
2. Map and monitor the location and intensity of snow compacting activities that coincide with lynx habitat, to facilitate future evaluation of effects on lynx as information becomes available.

##### Programmatic planning-guidelines:

- a. Provide a landscape with interconnected blocks of foraging habitat where snowmobile, cross-country skiing, snowshoeing, or other snow compacting activities are minimized or discouraged.
- b. As information becomes available on the impact of snow compacting activities and disturbance on lynx, limit or discourage this use in areas where it is shown to compromise lynx habitat.

##### Project planning-standards:

#### *Developed Recreation:*

1. In lynx habitat, ensure that federal actions do not degrade or compromise landscape connectivity when planning and operating new or expanded recreational developments.
2. Design trails, roads, and lift termini to direct winter use away from diurnal habitat.

*Dispersed Recreation:*

1. To protect the integrity of lynx habitat, evaluate (as new information becomes available) and amend as needed, winter recreational special use permits (outside of permitted ski areas) that promote snow compacting activities in lynx habitat.

*Forest/Backcountry Roads and Trails*

Programmatic planning-objectives:

1. Maintain the natural competitive advantage of lynx in deep snow conditions.

Programmatic planning-standards:

1. On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. Winter logging activity is not subject to this restriction.

**Conservation Measures to Address Mortality Risk Factors**

Competition and Predation as Influenced by Human Activities:

Habitat changes that benefit competitor/predator species, including some vegetation management practices and providing packed snow travel ways, may lead to increases starvation or direct mortality of lynx. Refer also to applicable conservation measures in the Forest Management, Recreation, and Forest Backcountry Roads and Trails sections.

Programmatic planning-objectives:

1. Maintain the natural competitive advantage of lynx in deep snow conditions.

Programmatic planning-standards:

1. On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. Winter logging activity is not subject to this restriction.

*Highways*

Programmatic planning-objectives:

1. Reduce the potential for lynx mortality related to highways.

Programmatic planning-standards:

1. Within lynx habitat, identify key linkage areas and potential highway crossing areas.

Programmatic planning-guidelines:

1. Where needed, develop measures such as wildlife fencing and associated underpasses or overpasses to reduce mortality risk.

**Conservation Measures to Address Lynx Movement and Dispersal**

It is essential to provide landscape connectivity so that all or most habitat has the potential of being occupied, and populations remain connected.

Programmatic planning-objectives:

1. Maintain and, where necessary and feasible, restore habitat connectivity across forested landscapes.

Programmatic planning-standards:

1. Identify key linkage areas that may be important in providing landscape connectivity within and between geographic areas, across all ownerships.
2. Develop and implement a plan to protect key linkage areas on federal lands from activities that would create barriers to movement. Barriers could result from an accumulation of incremental projects, as opposed to any one project.

**A. Highways**

Programmatic planning-objectives:

1. Ensure that connectivity is maintained across highway rights-of-way.

Programmatic planning-standards:

1. Federal land management agencies will work cooperatively with the Federal Highway Administration and State Departments of transportation to address the following within lynx geographic areas:
2. Identify land corridors necessary to maintain connectivity of lynx habitat.
3. Map the location of “key linkage areas” where highway crossings may be needed to provide habitat connectivity and reduce mortality of lynx (and other wildlife).

Programmatic planning- guidelines:

1. Evaluate whether land ownership and management practices are compatible with maintaining lynx highway crossings in key linkage areas. On public lands, management practices will be compatible with providing habitat connectivity.

Project planning- standards:

1. Identify, map, and prioritize site-specific locations, using topographic and vegetation features, to determine where highway crossings are needed to reduce highway impacts on lynx.

**B. Ski Areas/Large Resorts and Associated Activities**

Programmatic planning-objectives:

1. When conducting landscape level planning on Federal lands, allocate land uses such that landscape connectivity is maintained.

Programmatic planning-standards:

1. Within identified key linkage areas, provide for landscape connectivity.

Project planning-standards:

1. When planning new or expanding recreational developments, ensure that connectivity within linkage areas are maintained.

Project planning-guideline:

1. Plan recreational development, and manage recreational and operational uses to provide for lynx movement and to maintain effectiveness of lynx habitat.

**Consistency Determination between the Proposed Action and the Canada Lynx Conservation Assessment and Strategy (CLCAS)**

Ruediger et al. (2000) identify project planning objectives, standards and guidelines to provide a consistent and effective approach for conserving the Canada lynx and its habitat on federally-managed public lands in the lower 48 states. The proposed action was designed considering management objectives, standards and guidelines identified in the *Canada Lynx Conservation Assessment and Strategy* (Ruediger et al. 2000). This proposal is largely consistent with those recommendations but may not adhere in every respect to the goal of the *Strategy*, which is to maintain or enhance desired lynx habitat conditions. In particular, snow compaction may be inconsistent with the goal of the *Strategy*.

Another possible incongruity with the CLCAS is the designation of a “motorized use” area in a lynx linkage zone. This area is located near Muddy Pass. While this linkage zone does not experience a large amount of winter recreational use, designating it as “motorized” may incrementally reduce the functionality of the habitat. The area is currently being managed to improve Canada lynx and wildlife habitat connectivity. The Colorado Department of Transportation recently installed 2 lynx underpasses in the section of US Highway 40 in the area for the purpose of improving the adjacent Muddy Pass lynx linkage zone, reducing the likelihood of ‘take’ with the associated highway project and improving habitat connectivity. As a component of that project, the underpasses were signed to reduce human (and snowmobile) use that could influence the effectiveness of the underpasses. During the underpass proposal development, there was a concern regarding snowmobiles and non-motorized recreationists using the underpasses and therefore reducing the effectiveness of the mitigation. If some form of protection buffer is not implemented with this decision, then human winter recreation use in the vicinity of the wildlife underpasses may create a barrier towards wildlife dispersal. This barrier would be inconsistent with the direction in the CLCAS.

Furthermore, Action Alternative #3, states “Allows motorized use of parking at Walton Creek with a motorized trail to 5A and 5B.” This may be inconsistent with the CLCAS (see programmatic planning-standards: #3; “On Federal Lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU unless the designation serves to consolidate unregulated use and improves lynx habitat through a net reduction of compacted snow areas. However, with the overall net reduction and consolidation of unregulated use, there may be opportunities to maintain some flexibility in the newly created motorized portion of the analysis area.

The designated Muddy Pass Canada lynx linkage zone was designated to provide an east west connection between the Park/Gore Ranges and the Rabbit Ears Range. This

would also connect a majority of Lynx Analysis Units (LAU) on the Routt National Forest and the Troublesome/Sheep Mountain area of the Routt National Forest. This linkage zone also serves to facilitate movement between the Arapaho Roosevelt National Forest, Rocky Mountain National Park and with majority of the Routt National Forest. The National Forest lands on the West side of the Muddy Pass Linkage Zone are in the analysis area for the **2004 Routt Winter Recreation Management Environmental Analysis**. While the majority of this area directly adjacent to the linkage zone has highly used designated compacted snow routes, a small portion (Proposed Lynx/Wildlife Corridor Protection Area) does not have compacted snow routes and currently does not receive much dispersed winter recreational use. Additionally, this area is the section where the linkage between the LAU's is most narrow, thus the most utilized by wildlife, and the most secure crossing location.

**Table 16- Description of Lynx/Wildlife Corridor Protection Area by Alternative and Lynx Habitat Type**

<b>Lynx/Wildlife Corridor Protection Area</b>	<b>LAU</b>	<b>Alt. #2 4,163 acres</b>	<b>Alt. #3 391 acres</b>	<b>Alt. #4 1,649 acres</b>
<b>Lynx Habitat Type</b>				
Denning	Middle Yampa Rabbit Ears	145 60	139 18	20 18
Non-Habitat	Middle Yampa Rabbit Ears	247 218	211 46	124 29
Other	Middle Yampa Rabbit Ears	2,245 903	791 257	13 31
Unsuitable	Middle Yampa Rabbit Ears	11 36	5 35	5 33
Winter Forage	Middle Yampa Rabbit Ears	215 267	166 133	20 132

### **Recommendation**

As a component of this project, the underpasses need some form of official, enforceable protection. Lynx are not the only animal of concern here. Many animals may utilize this corridor and the underpasses during the winter. The figures above represent the protection levels to maintain the effectiveness of this linkage corridor. Because of the terrain and amount of use in the area, a smaller winter recreation non-use protection area may suffice. Specifically, an area large enough to encompass the underpasses would be adequate to maintain the intent of those underpasses to facilitate wildlife movement, protect the investment of those underpasses and maintain consistency with the intent of the *Canada Lynx Conservation and Assessment Strategy* (Ruediger et al. 2000).

The incorporation of the following mitigation or design criteria into the alternatives is very pertinent to habitat connectivity for wildlife in the analysis area and Forest wide.

Create a winter recreation “Non-Use” buffer zone (Lynx/Wildlife Corridor Protection Area) around the Muddy Creek Pass underpasses located on the East side of Rabbit Ears Pass under US Highway 40.

In summary, while there may be small incongruities between Strategy guidelines and the proposed action, the activities associated with the 2004 Routt Winter Recreation Assessment and Management Environmental Analysis will likely result in a reduction in snow compaction (based on the enforceable non-motorized/motorized boundary), excluding areas from intense snow compaction caused by certain forms of winter recreation. While snow compaction may influence snow shoe hare populations and competition between lynx and other predators, no net increase in snow compaction or over-the-snow routes will occur in all alternatives except Alternative #3. The inclusion of a protective buffer, ensuring the integrity of the wildlife underpasses, would be consistent with the CLCAS. Therefore, the “No-Action” and Action Alternative #1 aren’t consistent because no protection buffers are considered. Because a protective buffer is included, Action Alternatives #2 - #4 would maintain consistency with the Strategy. The proposed action can only be consistent with the CLCAS (Ruediger et al. 2000) if a protective buffer is added to Alternative 1 (proposed action).

#### **Past, Current, and Reasonably Foreseeable Future Federal Land Management Activities**

While some portions of the Lower Elk River, Red Canyon, Rabbit Ears and Middle Yampa LAUs have been logged in the past, historic logging activity would be considered low for these LAUs. Most of the past logging has occurred in ‘1st’ growth or ‘virgin’ timber stands. Within the past 10 years there has been very little timber harvest in the area. Most of the timber harvest was associated with Steamboat Ski Area expansion and salvage after a forest fire on the Ski Area. There are still a small amount of timber treatments occurring on the Ski Area, as well as in a few developed campgrounds, that are associated with bark beetle suppression efforts. The ski area has also been involved in area expansions, lift developments and replacements, water developments, trail construction and relocations. There are several grazing allotments within these LAUs for both cattle and sheep. This area has been grazed consistently by domestic ungulates for over 100 years. Additionally, many domestic developments have occurred in the area. These include highway realignments, private, public water and sanitation developments, electronic sites, fiber optic lines, Colorado Department of Transportation Maintenance facilities, and communication sites. There have been a few fires that occurred recently in these LAUs. The Mad Creek, the Green Creek Fire, the Hinman and Burn Ridge and one prescribed burn on the Ski Area. The Dry Lakes Fuels Reduction Project was another project that has occurred in the last two years in the project area.

Many Forest Service permitted Outfitter/Guides operate in these LAUs. These include year-round types of uses. Winter use exists in the form of the Steamboat Ski Resort, hunting/fishing guides, ski touring, backcountry snowcat operations, and snowmobile outfitters. There are over 33 miles of cross-country ski trails, over seventy miles of groomed snowmobile trails, and over 22 miles of un-groomed snowmobile trails in the analysis area. The area experiences many destination

recreationists and is becoming more popular every year. Most days during the winter, many of the meadows close to Highway 40 on the eastern side of Rabbit Ears, are almost totally compacted by snowmobilers and skiers.

More fuels reduction treatments, both prescribed burns and mechanical treatments, bark beetle treatments, recreation and non-recreation special use permits, and general recreation, both winter and summer use, is also expected. Winter recreational use is increasing in both the Buffalo Pass and Rabbit Ears Pass areas (personal communication on May 5, 2004, with Rachel Kennon, Forest Service Recreation Planner). Furthermore, high levels of urban development are occurring on the private lands adjacent Forest in the Middle Yampa and Lower Elk River LAUs.

### Analysis & Determination Of Effects For The Canada Lynx

The BE/BA contains explicit information relative to this analysis. That document is available at the Hahns Peak/Bears Ears Ranger District office in Steamboat Springs.

In the Middle Yampa, Rabbit Ears, Lower Elk River, and the Red Canyon LAU's there are moderate differences by alternative to the number of acres that would have motorized and non-motorized use delineations. Winter recreation could influence available lynx prey by allowing lynx competitors into lynx wintering habitats. Actions between alternatives are very similar in impacts, however Alternative #3 would likely have the greatest potential for direct and indirect negative impacts to lynx and lynx habitat (specifically, winter foraging habitat). The analysis area does occur within lynx habitat and has the potential to affect lynx, and/or lynx habitat. The analysis area does occur within a key landscape linkage zone. This project does have the potential to temporarily modify lynx habitat. The proposed action will immediately result in a net decrease in snow compaction and would likely move motorized use to less sensitive lynx habitat. Current conditions within the analysis area are being managed appropriately according to Standards and Guidelines outlined in the Routt National Forest Land and Resource Management Plan (1997 Revision). With the implementation of the winter "non-use" area buffer zone, in and around the wildlife underpasses on Muddy Creek Pass, the proposed action addressed in the **2004 Winter recreation Assessment and Management Analysis** Biological Evaluation and Assessment, will be met in accordance and compliance with the objectives and standards listed in the *Canada Lynx Conservation Assessment and Strategy (CLCAS)* (Ruediger et al. 2000). After comprehensive analysis, it is determined that the implementation of the proposed action, is not likely to jeopardize the continued existence of the Canada lynx. Therefore, implementation of this proposed project is **"NOT LIKELY TO ADVERSELY AFFECT"** the Canada lynx.

### Rationale For Determination

- Management of the Steamboat Ski Area is not in the scope of this analysis. This area is considered 'lower quality' lynx habitat due to the existing recreational use and activities associated with the area have already been analyzed.

- Historical management actions have not changed more than 15% of lynx habitat within the LAU to an unsuitable condition within a 10-year period.
- Denning habitat will be maintained in patches larger than 5 acres, in accordance to project planning standards in the CLCAS, comprising at least 10 % of lynx habitat.

### Determination Of Effects On Listed Species

The following species were considered to have a “NO EFFECT” determination as a result of implementing the proposed project:

- Bald eagle (*Haliaeetus leucocephalus*)
- Bonytail (*Gila elegans*)
- Colorado pikeminnow (*Ptychocheilus lucius*)
- Humpback chub (*Gila cypha*)
- Pallid sturgeon (*Scaphirhynchus albus*)
- Razorback sucker (*Xyrauchen texanus*)

### Direct, Indirect, and Cumulative Effects Common to all Plants:

In general, any activity that alters or has the potential to negatively affect soils, water quality, temperatures in the ground or under snow, or emit contaminants in the environment may adversely affect any of these plant species. Winter recreational use, primarily snowmobiling and grooming operations, can remove and/or injure plants, alter soil properties and reduce the overall vigor of plants, if vehicles are operating while snow depths are inadequate to protect resources.

Four "potential threats" to plant resources were identified as a result of concentrated motorized and non motorized winter recreation that are occurring in rare plant habitat including; open meadows, peat-fens and riparian areas on Rabbit Ears Pass and Buffalo pass. These are:

- Snow Compaction
- Shoulder Seasons
- Ice Dams
- Fuel and Oil Deposits

Snow compaction in heavily used snow play areas and travel routes causes a decreased growing season (increased snow density results in frost which more deeply penetrates the soil causing fluctuations in soil surface temperature). Early spring growth of some plant species could be slowed resulting in potential negative impacts to Forest Service Region 2 Sensitive plants (Rabbit Ears Gilia), plants of local concern (Oregon Biscuit Root, Wild Hollyhock and Clustered Lady's Slipper Orchid) and rare plant communities (Peat-fen). Frost may penetrate the organic soils of peat fens (Round Leaved Sundew and other management status plants) more deeply than mineral soils. Herbs and shrubs in these areas may exhibit population declines. In



general, plant species that are on the edges of their elevation ranges could be lost. Those species comfortably in the middle of their elevation range are more buffered from this effect. Changes to Nitrogen and Carbon soil dynamics could also occur in response to climate change.

During shoulder seasons and drought when snow cover is patchy and low the tips of woody vegetation (trees and shrubs) are exposed, motorized and non-motorized winter recreationists cross from snow patch to snow patch where bare ground and vegetation are exposed. These activities are also likely to occur on wind swept ridges and trail-head/access areas. This could result negative impacts to Sensitive plants including the biomass removal of vegetation where the twigs and branches of trees and shrubs are bent or clipped, bark is ripped off and underground roots are disturbed. This could also result in habitat destruction for Sensitive plants including soil disturbance, vegetation compaction and soil removal.

Peat-fen and riparian shrubs (willows) are especially susceptible to physical damage. Ice dams form where snow is compacted from concentrated use at creek crossings and could alter stream channels during peak flows negatively affecting the proper functioning condition (PFC) and bank stability of streams. As a result, negative impacts could occur where riparian Sensitive plants (Leathery Grape-fern), plants of local concern and rare riparian plant communities occur.

Fuel and oil deposits have been observed in select locations within the concavities on the landscape (personal communication with Karen Vail, January 8, 2004). There are observations at Dumont Lake near Rabbit Ears Pass of "black fuel and oil deposits" and change in vegetation in the area including potential decreases in numbers of Isoetes (quillworts) in a pond. Trailheads, especially overnight trailheads are likely source points where flushes/pulses of pollutants are introduced to drainages when the snow thaws.

The peatland habitat that this and other rare obligate fen plant species require is sensitive to hydrologic change (localized or within watersheds} and there is no known method for creating or restoring peatlands, therefore it is not possible to mitigate for their loss (USDI Fish and Wildlife Service 1998). In general, any activity that alters water levels or water quality may adversely affect a portion of the potential habitat for these species. Habitat for this and other fen obligate plant species would be conserved through regional direction in the USFS memo 2070/2520-7/2620 which emphasizes the protection, preservation and enhancement of fens to all Region 2 forest supervisors (USDA Forest Service 2002). Winter recreational activities can negatively affect fen or wetland species through either soil churning or soil compaction that may result from operating over-the-snow vehicles during the shoulder seasons. Sedimentation resulting from winter recreational activities or other such disturbances to the natural ground cover can cause sedimentation thus negatively affecting these vegetative species. Such sediment deposits can have a significant effect on the plants. Recovery from burial is slow and depends on the depth of burial (Johnson-Groh & Farrar 1996).

“In addition, snowmobile use on frozen “bogs” in winter and ORV use of trails passing through bogs could degrade these fragile habitats more than other recreational uses. Trails and roads may divert or alter surface water flows, thus changing water

levels and drainage patterns significantly altering the unique bog habitat. Wanek (1973) reported that in bog communities, that snowmobiling caused a delay in the spring thaw by as much as 2 weeks due to deep frost penetration. The researcher found that snowmobile impacts on sphagnum moss were negligible, however herbs and shrubs demonstrated declines directly related to the intensity of snowmobile traffic. Bog plants were negatively effected including physical damage resulting from cold temperatures, which caused severe physical damage, retarded growth, desiccation, or death” (Joslin and Youmans 1999). Bogs are very similar in characteristics to fens and here, provide a surrogate for the analysis.

## **Air Resource**

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### Existing Condition

The air quality section for the HPBE Winter Recreation Assessment is tiered to the Final Environmental Impact Statement for the Revised Land and Resource Management Plan; Medicine Bow National Forest; December 2003. The air resource is discussed and analyzed in Chapter 3 – Affected Environment and Environmental Consequences starting on page 3-7.

The Legal and Administrative Framework section refers to The Federal Clean Air Act. The Forest Service must evaluate all management activities to ensure they will not: Cause or contribute to any violations of ambient air quality standards.

The Mount Zirkel Wilderness is adjacent to the analysis area and has been designated a Class I area.

In the Environmental Consequences section; Direct and Indirect Effects; Effects from Travel Management there is a discussion of winter motorized recreation use, which includes snowmobiles and snowcats. To summarize the study performed by the Rocky Mountain Research Station at a snowmobile stage area, there was determined to be no adverse impacts to air quality, vegetation, or water chemistry. Reference: Air Quality and Snow Chemistry at a Snowmobile Staging Area in a Rocky Mountain Subalpine Forest; Rocky Mountain Research Station; February 2002.

### Effects of Winter Recreation on Air Quality

The potential effects upon air quality from this assessment used the number of motorized acres versus the number of non-motorized acres. Therefore, those alternatives with the most acres of motorized recreation may potentially have a greater impact upon air quality. Ranking all of the alternatives for winter motorized recreation from the highest potential to the lowest.

Because emissions from snowmobiles are localized, none of the alternatives are expected to produce a measurable effect on air quality including the Mt. Zirkel Wilderness. Alternative 3 would have the highest emission levels, followed by Alternative 1 including the No Action Alternative, 4 and 2.

## Water and Soil Resources

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### Existing Condition

The analysis area lies in portions of the North Platte River, Colorado River, and Yampa River basins. Table 1 shows the sixth level watersheds by river basin that would be affected, and acres of motorized/non-motorized designation by alternative.

State water quality classified uses in the analysis area include aquatic life cold 1, recreation 1a, water supply, and agriculture. These designations require that streams and water bodies be: (1) capable of sustaining a wide range of coldwater biota including sensitive species, (2) suitable for recreation on or about water bodies where ingestion of small quantities of water is probable, (3) suitable for drinking following standard treatment procedures, and (4) suitable for irrigation and livestock consumption. Minimum state water quality standards have been established in accordance with these designated beneficial uses. None of the streams in the analysis area have been listed as impaired on the 303(d) list (CDH, 2004); however, Muddy Creek in the Muddy Creek sixth level watershed, and Newcomb Creek are on the state monitoring and evaluation list for possible sediment impairment (CDH, 2004).

Average annual precipitation in the analysis area ranges from 30-60 inches, with approximately 70 percent coming in the form of snow. Snow accumulates starting in the fall (Oct-Nov) and on average persists until mid-May through early July, depending on the elevation. Precipitation averages for the last 30 years at the Tower Snotel site on Buffalo Pass indicate this is one of the wettest areas in Colorado (NRCS snotel data).

Bedrock lithology is predominantly Precambrian gneisses and granitics. The eastern edge of the analysis area consists of glacial deposits adjacent to sedimentary shales and sandstones, with volcanic caps on the high points such as the Rabbit Ears. Soils in the analysis area reflect the bedrock lithology.

The primary management activities within the analysis area include timber harvest, road construction, livestock grazing, and recreation. All of these activities have the potential to affect soils and water quality through ground-disturbance. However, these ground disturbance activities generally occur during the snow free periods, and are not affected by winter recreation activities. Winter recreation activities include backcountry skiing, the Blue Sky West Powder Cats operation, and snowmobiling. The effects of these activities are considered in the Environmental Consequences section.

The Routt Forest Plan designates portions of the Fish Creek and Spring Creek watersheds as municipal watersheds. These watersheds are managed to produce high-quality water for the city of Steamboat Springs. Forest Plan Standards (LMP, 1997) designate that water quality considerations should be the priority when considering other management activities. Fish Creek Reservoir and Long Lake lie in the municipal watershed and are considered municipal supply reservoirs. Forest Plan Standards for recreation prohibit gas-powered motorboats on municipal supply reservoirs.

Executive Orders: *Executive Order 11988* directs federal agencies to provide leadership and take action on federal lands to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains. Agencies are required to avoid the direct or indirect support of development on floodplains whenever there are practicable alternatives and evaluate the potential effects of any proposed action on floodplains.

*Executive Order 11990*, as amended, requires federal agencies exercising statutory authority and leadership over federal lands to avoid to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands. Where practicable, direct or indirect support of new construction in wetlands must be avoided. Federal agencies are required to preserve and enhance the natural and beneficial values of wetlands.

### Effects Common to all Alternatives on Water and Soil Resources

None of the alternatives would be expected to affect water temperature or dissolved oxygen concentrations. This analysis focuses on winter use only, and there is no ground disturbance or direct alteration of vegetation proposed that would affect these parameters.

For the purposes of this analysis, winter recreation is assumed to occur with adequate snow depth to prevent ground disturbing activities. The proposed mitigation requiring minimum snow depths for motorized recreation minimizes ground disturbance. This would reduce the potential for soil compaction and soil disturbance. Both soil compaction and disturbance can increase surface erosion and sedimentation to the stream system. This mitigation would protect both the soil and water resources, as well as riparian woody shrub species by limiting the direct physical impacts of snowmobiles on shrubs. Based on the assumption that no winter motorized recreation occurs without adequate snow depth, the Environmental Consequences focus only on effects to activities that occur on snow. The lack of ground disturbing activities indicates that no direct changes to the sediment regime would be expected. With implementation of the proposed mitigation measures and lack of ground disturbing activities, there would be no direct effects to floodplains or wetlands (Appendix B). Minor effects to riparian vegetation and possibly wetland vegetation may occur (see below), but these effects would not affect overall wetland function.

Motorized winter recreation has a greater potential to affect the soil, water, and riparian resources than non-motorized recreation. Effects of snowmobiles are much more wide spread, and snowmobiles themselves have greater effects due to the weight of snow machines which increases snow compaction and effects to underlying vegetation, and emission of burned and unburned fuels and lubricants. Parameters potentially affected include soil temperature, snowmelt runoff, riparian shrub species, and water quality. The effects are highly dependant on location, particularly relative to watercourses and riparian areas, and the amount and timing of use.

Currently the entire analysis area outside of wilderness, deer and elk winter range, and designated ski areas is open to winter motorized and non-motorized use both on

and off of designated winter routes. Field reconnaissance has found extensive motorized recreation to occur off of designated routes through open parks and meadows. Many of these open meadows have streams with willow riparian communities that are key for maintaining stream channel stability. Given the extent of dispersed motorized use off of designated routes, the impacts from motorized recreation extend beyond the identified snowmobile routes, and have the potential to affect a high percent of the area open to motorized use. Effects from non-motorized recreation are typically much less due to lesser areal extent as well as no associated vehicle emissions that could affect water quality.

Monitoring has not been conducted to determine the extent that winter recreation is affecting resources. Due to the limited available literature and monitoring data, the potential environmental effects of winter recreation are described in the following sections, but the extent and degree which these impacts are occurring is unknown at this time. It is recommended that monitoring be initiated to determine if these effects are occurring, with subsequent management adjustments being made as needed.

Soil properties: Snowmobile use has not been found to increase soil compaction (Foresman et al., 1976; Ryerson et al., 1977). Snow compaction from snowmobiles has been found to affect both soil temperature and snowmelt patterns. Studies have found snow compaction to result in more erratic soil temperatures, and frost penetrating up to 60 centimeters deeper in colder temperatures under compacted snow than uncompacted (Neumann and Merriam 1972; Ryerson et al., 1977); another study found soil surface temperatures to be 2-3 degrees Celsius lower under snowmobile tracked areas than untracked areas (Foresman et al., 1976). Not only is soil temperature significantly colder under compacted areas, but the soil is typically frozen to greater depths (Aasheim, 1980). One study indicated that growth of spring flowers may be retarded by snow compaction (Aasheim, 1980).

Decreased soil temperatures are a concern in the analysis area due to the already short growing season. Soils must reach a certain temperature before plant growth can begin. Given the long period of snow cover, the growing season at higher elevations is limited. Monitoring should be initiated to determine if snow compaction from snowmobiling is affecting the timing and extent of plant growth.

Snowmelt patterns: Snow compaction can also affect melt patterns, and in turn the hydrologic regime. Several studies found delayed snowmelt in areas compacted by snowmobiles versus areas of uncompacted snow, and that frequency of snowmobile passes played a larger role than intensity ie, a lot of snowmobile use in one day had less affect than the same amount of snowmobile use spread out over multiple days (Keddy et al., 1979). A study near Ottawa Canada found that snow compaction slowed snowmelt, and that water holding capacity of compacted snow was reduced 70 percent at the surface and 40 percent mid-way down the profile. During spring snowmelt, these effects reduce the ability of the snow to slow runoff. The increase in snow density and thermal conduction as well as crystal structure results in snowmobile trails melting more slowly (Neumann and Merriam, 1972).

There is a concern that the increase in snow density from snow compaction coupled with the low water holding capacity of snow could create 'ice-dams' in low gradient streams in open meadows. During the winter base flow period the snow develops a

bridge over the channel and water is able to flow underneath. However, during spring melt and peak runoff, this bridge may reduce the channel capacity to accommodate flood flows, resulting in streambank erosion as water seeks a route around the restricted channel. It is recommended that monitoring be initiated to determine if this phenomenon is occurring in low-gradient open meadow streams with a high percent of snow compaction.

Riparian vegetation: Winter recreation has the potential to affect woody riparian species by bending and breaking of branches by recreationists running over the branches. Direct mechanical effects of snowmobiles on vegetation at or above the snow surface can result in up to 78 percent damage to leaders and saplings (Neumann and Merriam, 1972). This is most likely to occur with lower snow depths such as the beginning of the winter season before sufficient snow has accumulated to protect vegetation.

Water quality: Two-stroke engine snowmobiles release up to 30 percent of fuel and lubricant unburned (Caroll and White, 1999; Montana DEQ). This can lead to pollutant deposition into the top layer of snow and subsequently surface waters during snowmelt. In addition, high levels of particulate matter and carbon monoxide due to incomplete combustion are also emitted (McDaniel, 2002). Recent studies from Yellowstone National Park found a positive correlation between concentrations of ammonium, nitrate, sulfate, benzene, toluene, and snowmobile use (Ingersoll, 1999). Concentrations of ammonium were up to three times higher in groomed snowmobile routes compared to off of groomed routes (no motorized use); the higher concentrations decreased to baseline levels within 50-100 meters of the groomed routes. Toluene was found to be persistent in snowmelt runoff; additional monitoring is needed to determine if the other substances affect water chemistry during snowmelt. Initial snowmelt runoff sampling in Yellowstone indicates that snowmobile emissions are dispersed into watersheds at concentrations below levels considered harmful to ecosystem function or human health (Ingersoll, 1999). However, snowmobiles in Yellowstone are restricted to designated routes, so the extent of effects in the analysis area may be greater where snowmobile travel is permitted off of designated routes.

Effects to water quality are of greatest concern where motorized use occurs on or within 200 feet of water bodies. Chemical contamination from winter motorized use in the uplands appears to be dissipated in the uplands. Concentrated motorized use either on or immediately adjacent to streams and lakes has the greatest potential to effect water quality. While any area open to winter motorized use is susceptible to motorized use on or adjacent to stream courses, marked snowmobile routes on or within 200 feet of stream courses are considered the most likely to affect water quality since they receive the highest concentrated use.

Indirect effects to water quality can occur from overnight camping in winter parking areas with inappropriate sanitation facilities. This concern needs to be considered with the existing parking lot situation as well as expansion of existing parking lots or development of new parking lots. Increased use and overnight camping could contribute to cumulative effects from inadequate sanitation facilities. These site

specific decisions and effects are beyond the scope of this analysis, and will be covered in later site-specific environmental analyses.

Mitigations: All of the alternatives have the potential for the above effects to some degree since all alternatives include winter-motorized recreation. The following mitigations are recommended to minimize potential effects to soils, water quality, and riparian woody species:

Allow winter motorized recreation when unpacked snow depths equal or exceed 12 inches; exceptions are allowed during the spring and fall season on classified roads across transition zones so long as it does not cause visible damage to the road surface.

Allow use of winter heavy equipment (ie snowcats or grooming machines) when unpacked snow depths equal or exceed 18". Special use permits will be evaluated on a case-by-case basis.

Prohibit winter-motorized recreation on Fish Creek and Long Lake reservoirs.

Prohibit winter-motorized recreation on any open surface water.

Ensuring adequate snow cover for winter-motorized recreation would minimize ground disturbance, and protect soils and riparian vegetation. Prohibiting winter motorized recreation on Fish Creek and Long Lake reservoirs is consistent with the Forest Plan Standard that prohibits gas powered motor boats on municipal supply reservoirs. It is also consistent with the general standard that directs that water quality considerations be the priority when conflicts arise with other resources in the municipal watershed. This mitigation would minimize the potential for direct effects to the municipal water supply by limiting the amount of unburned fuel and lubricants that are deposited directly into the municipal water supply. Prohibiting winter-motorized recreation on open surface water prevents potential impacts to water quality and aquatic life. Additional information pertaining to these mitigations can be found in Appendix C.

Effects by alternative: Effects of the different alternatives on the soil, water, and riparian resources evaluates the acres open to motorized versus nonmotorized recreation, and location of groomed snowmobile routes relative to streams and lakes. As mentioned above, motorized recreation has a greater effect than nonmotorized recreation since snowmobiles travel off of designated routes and effect more extensive areas, the machines are heavier and have wider tracks which results in more snow compaction and potential effects to riparian species, and the unburned fuel and lubricants can affect water quality. Several snowmobile routes are either on or immediately adjacent to stream courses for long distances, particularly routes 1A and 4A along Fishhook Creek (tributary to Walton Creek), and a headwater tributary to Walton Creek. For all alternatives it is recommended that these routes be relocated into upland areas to reduce effects to water quality.

Consistency with the Clean Water Act: There are no State-designated impaired streams affected by this project, nor will the project increase risk of impairment for streams on the monitoring and evaluation list. The project is not expected to have adverse impacts to the sediment regime, water quality, coldwater biota, recreation, or

other beneficial uses. Recommended mitigation measures address these issues, and if followed, the proposed activities are consistent with the Clean Water Act.

There are no ground-disturbing activities in any of the alternatives. Therefore there would be no construction activities requiring a 402 stormwater discharge permit, and no dredge and fill activities that would require a 404 permit.

Consistency with Wetlands/Floodplains Executive Orders: The proposed activities are assumed to occur over snow, in snow-covered conditions. This project will not alter floodplain processes or construct facilities in floodplains and is therefore consistent with *Executive Order 11988* for the protection of floodplains. Recommended mitigation measures and Design Criteria are designed to reduce risks to wetlands. The overall project is consistent with *Executive Order 11990*.

### Effects of No Action Alternative on Water Resources

Direct and Indirect Effects: This alternative would result in 67 percent of the analysis area being recommended for winter-motorized use (Table 1). In actuality, motorized use could affect 100 percent of the area outside of wilderness since these would only be recommended use guidelines. From this standpoint, this alternative has the greatest potential to affect soil temperatures, snow compaction, water quality, and riparian condition.

There would be a high potential for direct effects to water quality on 6.7 miles of designated motorized routes that lie within 200 feet of streams.

All of the municipal watershed would be open to winter motorized recreation. This combined with not closing the municipal water supply reservoirs to motorized use would have the highest potential for effects to the municipal water supply.

Cumulative Effects: This alternative would not implement the recommended mitigation measures which, combined with the entire area being open to winter motorized recreation, would have the greatest potential for cumulative impacts on the soil, water, and riparian resources. This alternative would not directly conflict with Forest Plan Standards and Guidelines (LMP, 1997), although not implementing the specified mitigations would not be consistent with making protection of water quality the highest priority in the municipal watershed. This alternative would not result in irreversible or irretrievable effects to the soil or water resources.

### Effects of Alternative 1 on Water and Soil Resources

Direct and indirect effects: This alternative would result in 67 percent of the analysis area being open to winter motorized recreation. The greatest potential for impacts would occur in the Muddy Creek sixth level watershed since the entire watershed would be open to motorized use (Table 1), and three of the most heavily used parking lots lie in this watershed.

There would be a higher potential for effects to soil temperatures, snow compaction, water quality, and riparian shrub species than Alternative 2, although these effects are highly dependant on motorized use patterns. There would be high potential direct effects to water quality on 6.7 miles of designated motorized routes that lie within



200 feet of streams. As mentioned above, relocation of these routes should be considered to minimize potential effects to water quality.

Winter motorized recreation would be allowed in 88 percent of the municipal watershed management prescription which would have a higher potential for effects to the municipal water supply than Alternative 2. Monitoring is recommended to determine if effects to water quality occur with increasing use. Effects to water quality should be evident through testing at the water treatment plant for domestic water.

*Cumulative effects:* This alternative would have lower potential for cumulative effects than the No Action Alternative due to implementation of the specified mitigations, and a reduction in the area open to winter motorized recreation. Implementation of specified mitigation measures would reduce the potential for cumulative effects to water quality in the municipal watershed, and help to protect the soil, water, and riparian resources.

Implementation of specified mitigations would be consistent with Forest Plan direction, and there would be no irreversible or irretrievable effects to the soil, water, and riparian resources.

## Effects of Alternative 2 on Water and Soil Resources

*Direct and indirect effects:* A lower percent (54 percent) of the analysis area would be open to motorized use than in Alternatives 1, 3, and 4. From this standpoint it would have the least potential for effects to soil temperatures, snow compaction, water quality, and riparian woody species. Implementation of the recommended mitigation measures would reduce these effects and provide additional protection for the soil, water, and riparian resources.

This alternative would have the lowest percent (55 percent) of the area within the municipal watershed management prescription open to motorized use, which represents the lowest potential for impacts to the municipal water supply of any alternative. This alternative would also have the least number of miles of designated motorized routes within 200 feet of stream channels, and therefore the lowest potential for effects to water quality.

Implementation of the area closure for the lynx linkage zone would close several water courses including the headwaters of Little Muddy Creek and portions its tributaries, as well as parts of several tributaries to Grizzly Creek. Muddy Pass Reservoir would also be closed to winter motorized recreation. This would reduce the potential for water quality impacts from unburned fuel and lubricants being deposited directly into the stream system and reservoir. This would improve overall water quality and reduce effects to aquatic species and historical boreal toad habitat around Muddy Pass Reservoir.

*Cumulative effects:* This alternative would have the least potential for adverse cumulative effects to the soil, water, and riparian resources due to the lower acreage open to motorized use, and implementation of the specified mitigation measures. The combination of lesser area open to motorized use (both on and off of groomed routes), less miles of groomed routes immediately adjacent to water courses, less of

the municipal watershed open to motorized use, and areas closed for lynx linkage zones including Muddy Pass Reservoir would result in the least impacts to water quality of any of the alternatives.

Implementation of specified mitigations would be consistent with Forest Plan direction, and there would be no irreversible or irretrievable effects to the soil and water resources.

### Effects of Alternative 3 on Water and Soil Resources

*Direct and indirect effects:* This alternative would have the highest potential for effects to soil temperatures, snow compaction, water quality, and riparian shrub species of the action alternatives with 75 percent of the analysis area open to winter motorized recreation. This alternative would also have the highest percent of the municipal watershed management prescription (95 percent) open to motorized use, which means the highest potential for effects to the municipal water supply.

This alternative would also have the most designated snowmobile routes within 200 feet of streams (7.4 miles), which means the greatest potential for effects to water quality associated with designated routes. The additional miles would occur along a headwater tributary to Walton Creek; other concern routes (1A and 4A) were also identified along tributaries to Walton Creek.

Implementation of the area closure for the lynx linkage zone would close Muddy Pass Reservoir to winter motorized recreation. This would reduce the potential for water quality impacts from unburned fuel and lubricants being deposited directly on the reservoir. This would improve overall water quality and reduce effects to aquatic species and historical boreal toad habitat near Muddy Pass Lake.

*Cumulative effects:* The potential for adverse cumulative effects to the soil, water, and riparian resources would be the highest of all of the action alternatives. Since the extent and degree of these effects is unknown at this time, these cumulative effects are not considered significant; however, monitoring and review of ongoing research in Yellowstone and other areas are recommended for verification.

With implementation of the specified mitigations, the alternative is consistent with Forest Plan direction for the soil, water, and riparian resources, and there would be no irreversible or irretrievable effects.

### Effects of Alternative 4 on Water and Soil Resources

*Direct and indirect effects:* Effects of this alternative would be similar to Alternative 1 in that 66 percent of the analysis area would be open to motorized use, and the miles of designated snowmobile routes within 200 feet of stream courses would be the same. A higher percent (94 percent) of the municipal watershed management prescription would be open to motorized use, and effects to the municipal watershed would be similar to Alternative 3.

Implementation of the area closure for the lynx linkage zone would close Muddy Pass Reservoir and the immediate headwaters of Little Muddy Creek along with portions of tributaries to Grizzly Creek to winter motorized recreation. This would reduce the

potential for water quality impacts from unburned fuel and lubricants being deposited directly on the reservoir and into stream courses. This would improve overall water quality and reduce effects to aquatic species and historical boreal toad habitat.

Cumulative effects: Cumulative effects would be similar to Alternative 1, except in the municipal watershed where there would be a higher potential for adverse effects to water quality similar to Alternative 3.

The cumulative effects are not considered significant since the degree and extent of cumulative effects to soil temperature, snow compaction, water quality, and riparian species is unknown at this time. With implementation of the specified mitigations, the alternative is consistent with Forest Plan direction, and there would be no irreversible or irretrievable effects.

## Cumulative Effects

This section is based on the Interdisciplinary Team's cumulative impacts analysis, which looked at the incremental impact resulting from the action alternatives being proposed, combined with other relevant past, present, and reasonably foreseeable future actions and trends (40 CFR 1508.7).

**Table 17– Cumulative Effects**

Issue/Resource	Specialist
Wildlife – Conflicts with Development in the Yampa Valley, Catamount, the Alpine Development	Wildlife, Recreation
Wildlife – Conflicts with Recreation in 5.41 Management Areas, Steamboat Ski Area, Backdoor Skiing	Wildlife, Recreation
Recreation – Increased use in other areas, on and off the Forest	Recreation
Social and Economic – long term effects	Social and Economic
Cultural Resources – The inevitable effects of increased use of cultural resources due to increased access into areas containing these resources.	Archaeology

### Wildlife Conflicts with Development in the Yampa Valley

Based on the current level of private development, the urban interface is encroaching on the winter range Forest-wide. Private in-holdings, juxtaposition to private lands, and the Ski Area development have displaced many deer and elk from their historical winter ranges and have degraded the quantity and quality of this habitat in the 5.41 habitat in the vicinity of Steamboat Springs. Furthermore, the increase in human population, the increase in development, the increase in winter recreational activities, and the increase of human presence in the area has created more potential for conflict with wintering deer and elk.

Winter recreational use occurring within 5.41 areas from “backdoor” recreationists is another problem. People and their dogs are likely snowshoeing, skiing, and even

snowmobiling from their backdoors from private property onto the Forest into the deer and elk winter ranges and disturbing the animals. This reduces the quality of wintering habitat for those animals. Because of the shrinking quality and quantity of the winter ranges, we need to counter-balance those effects with proper management of those narrowing habitats. Cumulative impacts associated with the level of private development occurring in the Yampa Valley may lead to a complete avoidance of the area or habituation of animals. Obviously, this is a worst case scenario but this may inevitably be the outcome. The desired condition would be to avoid overcrowding and unnatural conditions by providing quality habitat to these animals. The increase in potential conflicts is highly probable throughout most of the winter ranges on the Routt National Forest.

### Cumulative Effects to Fen Obligate and other Plant Species

Riparian areas support the vast majority of wildlife and plant species, support most wooded areas and provide available surface water supplies. Vegetation in riparian areas includes alders, cottonwoods and willows, and many others. These species provide friction and resistance to water and stabilize stream banks with their roots. Plant canopies also influence stream temperature and health of aquatic species, contributing woody debris to streams and lakes. This in turn provides habitat in and out of the water for many species of aquatic and terrestrial wildlife and plants. Riparian areas maintain the natural habitat, slow the path of sediment and other erosive mechanisms, and provide food for microorganisms and other creatures. Riparian areas intercept, cycle and accumulate chemicals in the water, removing pollutants that might otherwise come in contact with water bodies. They serve as habitat for almost all amphibians, many reptiles, and the majority of birds, many mammals, and many rare plant species.

Recreational use within riparian areas could remove and/or injure plants, alter soil properties, change the hydrologic regime and/or reduce the overall vigor of these wetland species. More accurately, any activity that causes loss or deterioration of wetland habitat could negatively affect fen obligate vegetative species due to their aquatic requirements. Concentrated recreational use in and along aquatic habitats could damage plants or alter the habitat through introduction of pollutants. Other activities, generally associated with summer use, which could cause hydrologic change include wetland development, concentrated livestock use, road building, logging, motorized recreation and peat mining.

Competition from non-native invasive plants constitutes a potential threat to this or any native plant species. Invasive species are introduced and spread by a variety of activities including livestock grazing, recreational use, road maintenance or construction, and timber harvest. Such impacts are generally not associated with winter recreation. Across its known range populations have been impacted by drainage, diversion, livestock use, road construction, increased sedimentation, nutrient enrichment, mining and fish introductions, etc. High intensity fires could negatively impact individuals or whole populations of plant species. Especially where there are abrupt riparian/upland ecotones. Additional threats may include

activities that change the canopy cover, soil temperature, and/or soil moisture content, removal of overstory, horticultural collecting, and medicinal collecting.

There are no other predicted cumulative effects other than those produced by fluctuations in climate, such as prolonged drought, or other natural events such as insect and disease outbreaks. Climatic warming and drought may pose the greatest potential risk to this [plant] species by altering the temperature and moisture regimes of its specialized microhabitats in the Rocky Mountains (Bornong and Petterson 2001).

### Recreation Increases in other areas of the Forest

The cumulative effects area for recreation includes the Routt portion of the Medicine-Bow Routt National Forest. Any action taken will affect not only the immediate vicinity of Rabbit Ears/ Buffalo Pass, but also other areas (on and off the forest) where snowmobiling, cross-country skiing and other forms of winter recreation currently are or potentially could be found.

Winter recreation is increasing in popularity in all parts of the country, but especially in the Rocky Mountains. In *Projections of Outdoor Recreation Participation to 2050*, Bowker, English, and Cordell (2000) predict that participation in cross-country skiing will increase far faster than the rate of population growth in the Rocky Mountains. Similarly, participation in snowmobiling will increase, but at a rate at or below population growth (Bowker et al., 2000). Regardless, anticipated population growth rates in the United States guarantees that more and more people will participate in winter recreation activities over the next fifty years.

The results of the winter recreation environmental assessment will affect winter recreation participation in other parts of the Routt National Forest. If no action is taken, winter recreation use in the Rabbit Ears/ Buffalo Pass area will continue to increase and conflicts will also increase. Some users will reevaluate their perception of the situation so that they no longer are upset by crowding or other conflicts (Miller and McCool, 2003). Other users will find another place that meets their recreation experience expectations better. This may be in another part of the Hahns Peak/Bears Ears district, or another part of the Routt National Forest or adjacent public lands such as BLM or state parks. This substitution will increase use in areas that currently have little or no use which will likely result in similar social impacts.

A small percentage of users may no longer participate in their chosen sport because the conflict and anxiety it causes is too great. While this will likely amount to a very small percentage of the overall winter use population, it is a segment that should not be lost. A related segment is people who are novices to the sport and choose not to participate because they have heard too many negative reports about the experience. In the long-term, support for Forest Service actions could decline. When users' needs are not satisfied, they are less likely to support management decisions.

Another effect is the summer usage of winter trails. Cross-country ski and snowmobile trails are marked with small diamond markers that are either placed permanently in trees or temporarily on poles in the snow. The temporary markers are removed at the end of each season, but the permanent markers stay up year-round.

Some summer recreationists may follow these permanent markers and cause impacts to wildlife, archaeology, soils, and water resources with user-created trails. While all trails create impacts to these resources, system trails must go through environmental analysis and mitigation measures are implemented to reduce impacts. Non-system (user-created) trails, however, are often made by people going point-to-point without knowledge of sensitive areas and environmental impacts.

If summer users were to follow winter trail markers, they may go through areas where off-trail foot, horse, or bicycle traffic causes significant impacts. On the other hand, the permanent winter trail markers are not necessarily easy to follow, especially in open meadows where there are no trees. It would be difficult for summer users to stay on a “trail” that is not designated, mapped, or signed. At best, summer users would be able to follow markers through trees as long as they could find them and then travel cross-country through meadows and other openings, eventually losing the “trail.” Separating summer and winter trailheads and removing as many winter signs and markers as possible will reduce summer-use impacts.

### Cultural Resources

The loss of archaeological resources has happened in the past and will happen in the future. The cumulative effect is that over time fewer archaeological resources will be available to learn about past human lifeways, to study changes in human behavior through time, and to interpret the past to the public. This is due to a variety of human and animal impacts and the elements. During this project, the potential for cumulative effects from this project is considered very low. However, it is possible that increased use of the area by motorized and non-motorized users may also increase the potential for inadvertent discoveries of historic resources (cabins) exposed above the snow, possibly resulting in the damage and/or destruction of these historic properties.

## Social and Economic Long Term Effects to Blue Sky West Operation

As indicated in the Blue Sky West special use permit EA, this commercial operation offers benefits to all users of the area, not just their clients. They groom routes for all users, offer medical assistance if needed, and assist in emergency rescues if called upon. They also offer people with few backcountry skills or experience the opportunity to safely enter the Forest and enjoy a new and challenging sport. Alternatives 1 and 4 will assist in the long term with the viability of their business, Alternative 2 will offer long term assurance of open terrain and a non-motorized experience for clients. Alternative 3 does little to improve the current situation, and with the increases in growth, conflicts will likely increase. Such conflict and decline in opportunity for backcountry experience may eventually force Blue Sky West to change or end operations.

## Routt County

Routt County considerations within the analysis area are focussed on the areas of Forest Service land that share a common boundary with private property in unincorporated Routt County – specifically along the Forest Service boundary from Lake Catamount north to the Strawberry Park Hot Springs. These comments are applicable to all alternatives.

**Routt County Road and Bridge Department operations on Buffalo Pass.** No matter what alternative is selected, all Buffalo Pass road and parking impacts are basically the same. However, the Routt County Road and Bridge Department supports the addition of a new parking lot at Dry Lake (as shown in Alternative 4). If it's found that overnight parking could be allowed at Dry Lake, the County would work with the Forest Service in their plowing operations. Plowing the Dry Lake lot costs the County approximately \$8,000 per season (one or two lots would be about the same (easier, with less congestion and more room to maneuver on two lots). Plowing and winter maintenance on CR 38 road is approximately \$1,000 per mile per season. However, CR38 is plowed for residential access anyway and the County incurs no additional costs to plow for winter recreational access.

**Law Enforcement.** The Routt County Sheriff's Department is concerned that 1) no information has been presented showing how any of the changes will be enforced, and 2) there needs to be more attention on the parking problems on Buffalo Pass/Dry Lake.

**Protection of defined "residential neighborhoods."** A major concern of the County in this analysis is to be aware of negative impacts on certain areas defined as "Residential Neighborhoods" (RN) under the Routt County Master Plan. Such impacts include, but are not limited to, trespass on private property, noise associated with motorized vehicles, and the degradation of County roads used to access winter recreation areas and RN's. The attached map shows the County's RN's within the study area (excluding the City of Steamboat Springs) and a one mile radius "buffer area" around them. On all alternatives, the RN most impacted appears to be the Soda

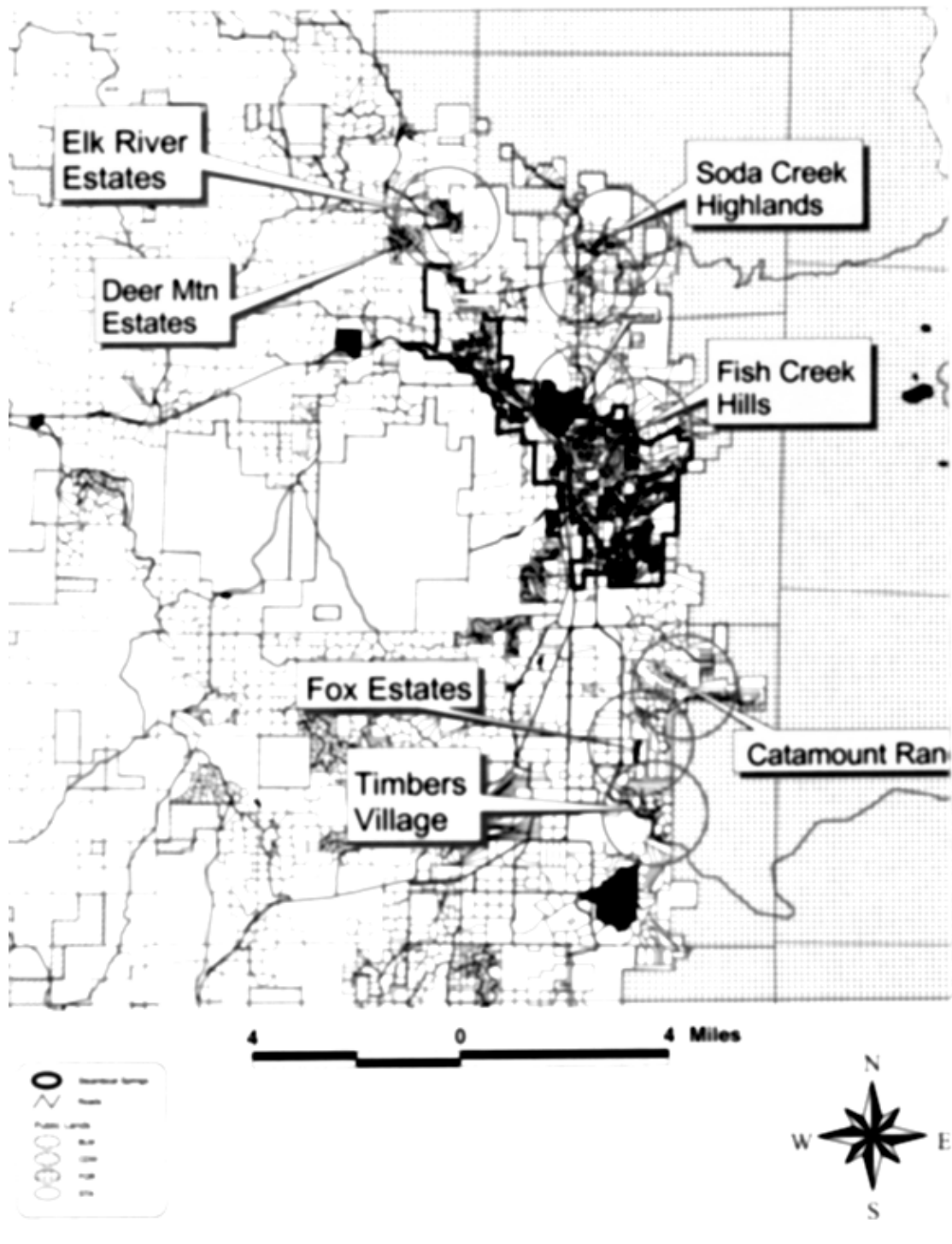
Creek Highlands subdivision (see County map). This seems to be the only scenario where a motorized area abuts an RN, and is in close proximity to a multi-use trailhead (Buffalo Pass).

**Potential for development on properties abutting Forest Service land.** Since 1980, the County Planning Commission and the Board of County Commissioners have taken the position, as reflected in past and present Master Plans, that “*New residential, commercial, and industrial developments and uses should occur within the vicinity of designated growth centers and in compliance with the adopted comprehensive plans of those areas.*” Potential development within Area A would be limited to: **1)** use permits granted on a case-by-case basis in conformance with the County Master Plan, Zoning Regulations, and the Steamboat Springs Area Community Plan (SSACP), **2)** subdivisions resulting in parcels of at least 35-acres, and **3)** subdivisions meeting the definition of the “Agricultural/Rural” category in the SSACP (basically cluster subdivisions at a density of one unit per 35 acres).

**The Routt County application/project referral process.** For applications received by the Routt County Planning Department, specifically subdivision requests and use permits (such as dog sled and snowmobile tours), the County will send out referrals to involved agencies. The Forest Service is on the Planning Department’s list of referral agencies. The project referral typically includes the applicant’s project narrative, site plan or map, deadline for agency comments, and the date, time and location of the public hearings. In addition to referrals, for any project that shares a common property line with Forest Service land, the County will also notify the Forest Service as an adjacent property owner (APO). The APO notice typically includes a brief summary of the project and the date, time, and location of the public hearing(s).



Map 7 – Routt County Subdivisions adjacent to the National Forest boundary



**Conformance with the County Master Plan.** For any land use applications requiring a County use permit, the following policies from the Master Plan's Recreation and Tourism Section could apply. These might be of some interest to the Forest Service:

Policy number 6.3.B. Disperse recreational users so that trails are not overused. Consider the cumulative impacts of recreational permits on their target areas.

Policy number 6.3.C. Encourage a formal system of cooperation between the many agencies involved with public land management in Routt County.

Policy number 6.3.F. Separate non-motorized from motorized uses to avoid conflicts. Use natural or cultural boundaries (roads) so that the boundaries are clearly defined.

Policy number 6.3.G. Preserve public access to public lands.

New county permitted recreational uses should avoid the construction of new, permanent structures.

(Currently under a Memorandum of Understanding (MOU) with the Forest Service, dated June 17, 1986.)

## Consistency with Forest Plan Direction

Forest Plan direction contains information for managing recreation in all management areas on the Forest. In some instances, that direction is clear, and in other instances, an analysis such as this one is needed to determine optimum management actions. Following is a table with management areas in the analysis areas, and the associated acres available for each activity, motorized and non-motorized.

**Table 37 – Management Areas Contained in the Analysis Area and Current Suggested Winter Motorized and non-motorized use**

Management Area	Management Area	GIS Acres	Forest Plan Direction		Percent Motorized
	Theme Description		Winter Motorized	Winter Non-Motorized	
1.32	Backcountry Non-Motorized Rec. (Limited Winter Motorized)	34,982	20,934	14,048	60%
5.11	General Forest and Rangelands - Forest Vegetation Emphasis	20,023	17,256	2,767	86%
3.23	Municipal Watershed	15,964	14,036	1,928	88%
4.2	Scenery	14,197	8,938	5,259	63%
4.3	Dispersed Recreation	7,097	5,816	1,281	82%
5.12	General Forest and Rangelands - Range Emphasis	3,990	3,990	0	100%
8.22	Ski Based Resorts	3,482	0	3,482	0%
3.31	Backcountry Year-Round Motorized Recreation	3,195	3,195	0	100%
5.41	Deer and Elk Winter Range	2,881	281	2,650	10%
5.13	Resource Production – Forest Products	2,620	2,620	0	100%
7.1	Residential/Forest Interface	1,479	1,316	163	89%
2.1	Special Interest Areas - Minimal Use and Interpretation	1,079	1,079	0	100%
	Non-National Forest	61			0%

Direction in each of these management areas for winter recreation allows for winter recreation, however there is a concern over the amount of motorized use in the municipal watershed, and over the amount of motorized use in the elk and deer winter range. These two concerns have been addressed in the alternatives for this analysis. Direction in 3.23 states that water quality is the emphasis. The City of Steamboat Springs offered their preferred resolution to this concern; restricting snowmobile use on the two key reservoirs; Fish Creek and Long Lake. Gas powered motor boats are also prohibited on municipal water supply reservoirs, in this management area (Forest Plan, page 2-26).

Proposals in this analysis are consistent with Forest Service regulations at 36 CFR 261.56, Use of Vehicles off National Forest System Roads. Regulations at 36 CFR 219.21 state that, "[t]o the degree consistent with needs and demands for all major resources, a broad spectrum of forest and rangeland related outdoor recreation opportunities shall be provided for . . . ." (36 CFR 219.21) The interactions among recreation opportunities and other multiple uses must be examined to evaluate the impacts of the proposed recreation activities on other uses and activities associated with them on recreation opportunities, activities, and quality of experience (36 CFR 219.21(d)). Consistent with regulations at 36 CFR 219.21, environmental and social implications (such as visitor use and key preferences), conflicts in use, and impacts of technology on use were analyzed in the Routt Forest Plan FEIS (pp. 3-150 through 3-168 and pp. 3-192 through 3-196).

The proposed action responds to the goals and objectives outlined in the *Routt Forest Plan*, and helps move the project area towards desired conditions described in that plan (Forest-wide Goal 2 in the Revised Plan states, "[p]rovide a wide variety of outdoor recreational opportunities and experiences to meet the full range of visitor expectations" (Revised Plan, p. 1-2).

The Forest-wide Standards and Guidelines under Infrastructure-Travelways (Revised Plan, pp. 1-22 through 1-24) provide direction to address user conflicts between non-motorized and motorized winter use.

- Infrastructure-Travelways, Standard #5 lists the Management Areas (MAs) that prohibit winter motorized use and directs that motorized use is allowed in all the remaining MAs, unless restricted in the future following site-specific analysis (Revised Plan, p. 1-23).
- Infrastructure-Travelways, Guideline #3f provides direction for managing motorized use by seasonal use restrictions if "competing uses create conflicts" (Revised Plan, p. 1-23). User Conflicts are defined in the recreation analysis of this EA.
- Infrastructure-Travelways, Guideline #5a directs that a wide range of recreation opportunities for both motorized and non-motorized be provided, and when conflicting use exists, "decide which trails are available for separate uses and which uses shall be shared. Where clearly necessary, trails may be dedicated to a single use to resolve conflicts" (Revised Plan, p. 1-24).
- Additionally, the Revised Plan contains direction to consider "developing new trail systems that expand the range of recreation opportunities, provide for user

safety, and disperse existing use into different areas” (Guideline #1) (Revised Plan, p. 1-23).

The Forests in Region 2 have been implementing the Canada Lynx Conservation Assessment and Strategy (CLCAS) (Ruediger et al. 2000, as amended) as interim Forest Plan guidance while the Regional Office has been working to amend the Forest Plans of Region 2 Forests affected by the significant new information presented by the listing of the Canada lynx as a threatened species. The decision to use the CLCAS as interim guidance was made Region 2 policy in part by an agreement between the Regional Forester and the US Fish and Wildlife Service.

The Muddy Pass Canada lynx linkage area was created to provide an east west connection between the Park/Gore Ranges and the Rabbit Ears Range. This would also connect a majority of Lynx Analysis Units (LAU) on the Routt National Forest and the Troublesome/Sheep Mountain area of the Routt National Forest. This linkage area also serves to facilitate movement between the Arapaho Roosevelt National Forest, Rocky Mountain National Park and with majority of the Routt National Forest.

The Routt National Forest recently completed a forestwide winter recreation assessment (available at the Forest Supervisor’s office) that described the concerns managers have over managing winter recreation due to budget timing and limitations, and to recommendations to consider in the next revision of the Forest Plan.

### MONITORING:

Because the exact impacts from winter recreation upon subnivean wildlife in the analysis area are difficult to formulate, a research project or administrative study may provide the Forest Service with answers to better manage for this species in the area. Currently, there is a proposal to conduct a master’s research study in the analysis area to analyze and evaluate snow compaction on subnivean small mammals.

*Monitor impacts of winter recreation and snow compaction on subnivean wildlife (proposed research study).*

## **Environmental Justice**

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As required by law and Executive Order 12898, all federal actions will consider potentially disproportionate effects on minority and or low-income communities. The following table highlights the demographic figures for the study area.

**Table 38 - Study area demographics, 2000 Census**

Area	White	Black	Asian, Pacific Islander	American Indian, Native Alaskan	More Than One Race	Hispani c Any Race	Total Minority	Families At Or Below Poverty Level
<b>----- Percent of total population -----</b>								
Grand County	95.2%	0.5%	0.8%	0.4%	3.5%	4.4%	4.9%	5.4%
Jackson County	96.2%	0.3%	0.1%	0.8%	2.7%	6.5%	3.8%	10.3%
Routt County	96.9%	0.1%	0.5%	0.5%	2.0%	3.2%	3.1%	2.8%
Kremling	92.9%	0.1%	0.4%	0.3%	6.4%	8.6%	7.1%	8.2%
Steamboat Springs	96.9%	0.1%	0.6%	0.3%	2.1%	3.1%	3.1%	2.7%
Walden	96.3%	0.1%	0.1%	1.4%	2.0%	7.0%	3.7%	14.2%
Yampa	96.4%	0.2%	0.2%	1.1%	2.0%	4.5%	3.6%	5.7%

Source: Dept. of Commerce, Census Bureau 2000.

Totals may add to more than 100 percent because people may select more than one race.

There are no minority populations within the study area, so no additional analysis was completed. Walden has the largest percentage of families at or below the poverty level. Because all alternatives will limit or grant the same access to everyone, there would be no disproportionate impacts to any community, so no additional analysis of the Walden area was completed.

## Civil Rights Impact Analysis

Data on disabilities for the counties in the area around the Routt National Forest are not available. Sources investigated include census and web searches.

The following table shows the population, proportion, and ratio by gender by county in the 6-county area as recorded in the 2000 census.

**Table 39 – Population by gender**

COUNTY	Total Population	Males	Percent	Females	Percent
Routt	20,405	10,978	53.8	9,427	46.2
Jackson	1,530	770	50.3	760	49.7
Rio Blanco	6,042	3,051	50.5	2,991	49.5
Garfield	47,249	24,286	51.4	22,963	48.6
Grand	12,984	6,882	53.0	6,102	47.0

From 2000 US Census

There is no reason to expect that any of the alternatives will strongly influence the historic gender ratios of the area. Population effects will be small, as reported in the Draft EA. Consequently, effects on gender will be small as well.

## Legal Framework

Agriculture and Consumer Protection Act of 1973 (16 U.S.C. 1502). This law requires land and resources to be protected from erosion and pollution.

Archeological Resources Protection Act of 1979; and the American Indian Religious Freedom Act of 1978. Forest Service policy (FSM 2361.3) requires that projects with the potential to affect cultural resources, including lands which will leave federal agency control through sale or exchange, be surveyed for cultural resources in order to comply with 36 CFR 800; the NHPA of 1966, as amended; the Archeological Resources Protection Act of 1979; and the American Indian Religious Freedom Act of 1978. To comply with these laws, any cultural resources known to be 50 years of age or older will be recorded according to State Historic Preservation Office standards, evaluated for eligibility to the National Register of Historic Places, and assessed for potential effects from the proposed action.

Clean Water Act of 1977 (33 U.S.C. 1251, 1254, 1323, 1324, 1329, 1342, 1344).

The Federal Water Pollution Control Act, (Clean Water Act) (33 USC 1251, 1254, 1323, 1324, 1329, 1342, 1344) as amended, intends to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Required are (1) compliance with State and other federal pollution control rules, (2) no degradation of in-stream water quality needed to support designated uses, (3) control of non-point source water pollution by using conservation or "best management practices", (4) federal agency leadership in controlling non-point pollution from managed lands, and (5) rigorous criteria for controlling discharge of pollutants into waters of the United States. The Forest Plan (LMP, 1997) and Watershed Conservation Practices (WCP) Handbook (FSH 2509.25) contain Standards and Design Criteria (i.e. Best Management Practices) to protect water quality in compliance with the Clean Water Act; specified mitigation measures provide additional protection.

Endangered Species Act of 1973 (16 U.S.C. 1531-1536, 1538-1540). This law was written to conserve endangered and threatened species of wildlife, fish, and plants and the ecosystems on which they depend. Federal agencies must conserve endangered and threatened species and cooperate with State and local agencies to resolve resource issues (Section 2). Conservation means the use of all means needed to recover any endangered or threatened species to the point where the measures provided pursuant to this law are no longer needed (Section 3).

Each Federal agency shall, with the consultation and help of the Secretary of Interior, ensure that any action authorized, funded, or done by the agency is unlikely to jeopardize the continued existence of any endangered or threatened species or result in adverse modification of their critical habitat (Section 7). The

Forest Service is required to consult with the Fish and Wildlife Service and to prepare biological assessments.
<u>Federal Land Policy and Management Act of 1976 (43 U.S.C. 1752).</u> NFS lands must be managed to protect ecological, environmental, air, water resource, and other values, and provide food and habitat for fish, wildlife, and domestic animals (Sections 102 and 310).
<u>Multiple Use-Sustained Yield Act of 1960 (16 U.S.C. 528).</u> This law amplifies National Forest purposes to include watershed, wildlife and fish, outdoor recreation, range, and timber. Renewable surface resources are to be managed for multiple use and sustained yield of the several products and services that they provide. The principles of multiple use and sustained yield include the provision that the productivity of the land shall not be impaired.
<u>National Forest Management Act of 1976 (16 U.S.C. 1600-1602, 1604, 1606, 1608-1614).</u> The Forest Service must be a leader in conserving natural resources (Section 2). Programs must protect and, where appropriate, improve the quality of soil and water (Section 5). Timber must be harvested only where soil, slope, and watershed conditions are not irreversibly damaged; the land can be adequately restocked within five years after harvest; and streams, lakes, wetlands, and other water bodies are protected from detrimental impacts (Section 6g).  Management prescriptions must conserve soil and water resources and not allow significant or permanent impairment of land productivity. Riparian areas along perennial water bodies need special attention. Management practices must not cause detrimental changes in water temperature or chemistry, blockages of water courses, or sediment deposits that seriously and adversely affect water conditions or fish habitat (36 CFR 219.27). Fish habitat must maintain viable populations of existing native and desired non-native vertebrate species (36 CFR 219.19).  The National Forest Management Act directs the Forest Service to select certain plants, communities, and vertebrate or invertebrate species to manage for maintenance and improvement of habitat. Requirements to identify and utilize Management Indicator Species (MIS) in Forest and project level planning were identified under NFMA planning regulations in 1982-219.19(a) (1). Management Indicator Species (MIS) are species that respond to habitat changes, are scarce or unique, are of high economic interest, or are listed as Federal or State threatened or endangered. Trends or changes in management indicators may reflect the effects of management activities. At the project level, management indicators are selected that best represent the issues, concerns and opportunities of the project (FSM 2621.1).
<u>Organic Administration Act of 1897 (16 U.S.C. 475).</u> This law defines original National Forest purposes to improve and protect the forest, secure favorable conditions of water flows, and furnish a continuous supply of timber. Years of concern about watershed damage led to creation of the National Forest System.



Watersheds must be cared for to sustain their hydrologic function as "sponge-and-filter" systems that absorb and store water and naturally regulate runoff. The goals are good vegetation and ground cover, streams in dynamic equilibrium with their channels and flood plains, and natural conveyance of water and sediment.

Watershed Protection and Flood Prevention Act of 1954 (16 U.S.C. 1001). This law authorizes watershed improvement works to prevent floods, conserve ground water recharge and water quality, and protect aquatic life (16 U.S.C. 1004).

## **CONSULTATION AND COORDINATION**

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

### **Federal, State, And Local Agencies:**

Routt County Commissioners  
Routt County Planner  
Routt County Sheriff  
Jackson County Sheriff  
Jackson County Commissioners  
Grand County Commissioners  
Colorado Division of Wildlife  
Colorado State Parks  
Colorado Department of Transportation  
City of Steamboat Springs  
US Fish and Wildlife Service

### **Native American Tribes**

Northern Ute  
Southern Ute Individual Groups  
Colorado Snowmobile Association  
Routt Winter Task Force  
Routt Powder Riders  
Friends of the Routt Backcountry

### **Commercial Operators**

Blue Sky West  
Steamboat Snowmobile Tours  
Steamboat Ski and Resort Corporation

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Ken Brink, Manager, Steamboat Lake State Park

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## **APPENDICES**

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### **Appendix A – Executive Order Number 11644**

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#### **EXECUTIVE ORDER NO. 11644**

Feb. 8, 1972, 37 F.R. 2877, as amended by Ex. Order No. 11989, May 24, 1977, 42 F.R. 26959; Ex. Order No. 12608, Sept. 9, 1987, 52 F.R. 34617 >

#### **USE OF OFF-ROAD VEHICLES ON PUBLIC LANDS**

An estimated 5 million off-road recreational vehicles--motorcycles, minibikes, trail bikes, snowmobiles, dune buggies, all-terrain vehicles, and others--are in use in the United States today, and their popularity continues to increase rapidly. The widespread use of such vehicles on the public lands--often for legitimate purposes but also in frequent conflict with wise land and resource management practices, environmental values, and other types of recreational activity--has demonstrated the need for a unified Federal policy toward the use of such vehicles on the public lands.

Now, Therefore, by virtue of the authority vested in me as President of the United States by the Constitution of the United States and in furtherance of the purpose and policy of the National Environmental Policy Act of 1969 (42 U.S.C. 4321) [this chapter], it is hereby ordered as follows:

Section 1. Purpose. It is the purpose of this order to establish policies and provide for procedures that will ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands.

Sec. 2. Definitions. As used in this order, the term:

"Public lands" means (A) all lands under the custody and control of the Secretary of the Interior and the Secretary of Agriculture, except Indian lands, (B) lands under the custody and control of the Tennessee Valley Authority that are situated in western Kentucky and Tennessee and are designated as "Land Between the Lakes," and (C) lands under the custody and control of the Secretary of Defense;

"Respective agency head" means the Secretary of the Interior, the Secretary of Defense, the Secretary of Agriculture, and the Board of Directors of the Tennessee Valley Authority, with respect to public lands under the custody and control of each;

"Off-road vehicle" means any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain; except that such term excludes (A) any registered motorboat, (B) any fire, military, emergency or law enforcement vehicle when used for emergency purposes, and any combat or combat support vehicle when used for national defense purposes, and (C) any vehicle whose use is expressly authorized by the respective agency head under a permit, lease, license, or contract; and



"Official use" means use by an employee, agent, or designated representative of the Federal Government or one of its contractors in the course of his employment, agency, or representation.

Sec. 3. Zones of use. (a) Each respective agency head shall develop and issue regulations and administrative instructions, within six months of the date of this order, to provide for administrative designation of the specific areas and trails on public lands on which the use of off-road vehicles may be permitted, and areas in which the use of off-road vehicles may not be permitted, and set a date by which such designation of all public lands shall be completed. Those regulations shall direct that the designation of such areas and trails will be based upon the protection of the resources of the public lands, promotion of the safety of all users of those lands, and minimization of conflicts among the various uses of those lands. The regulations shall further require that the designation of such areas and trails shall be in accordance with the following—

(1) Areas and trails shall be located to minimize damage to soil, watershed, vegetation, or other resources of the public lands.

(2) Areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats.

(3) Areas and trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.

(4) Areas and trails shall not be located in officially designated Wilderness Areas or Primitive Areas. Areas and trails shall be located in areas of the National Park system, Natural Areas, or National Wildlife Refuges and Game Ranges only if the respective agency head determines that off-road vehicle use in such locations will not adversely affect their natural, aesthetic, or scenic values. (b) The respective agency head shall ensure adequate opportunity for public participation in the promulgation of such regulations and in the designation of areas and trails under this section. (c) The limitations on off-road vehicle use imposed under this section shall not apply to official use.

Sec. 4. Operating conditions. Each respective agency head shall develop and publish, within one year of the date of this order, regulations prescribing operating conditions for off-road vehicles on the public lands. These regulations shall be directed at protecting resource values, preserving public health, safety, and welfare, and minimizing use conflicts.

Sec. 5. Public information. The respective agency head shall ensure that areas and trails where off-road vehicle use is permitted are well marked and shall provide for the publication and distribution of information, including maps, describing such areas and trails and explaining the conditions on vehicle use. He shall seek cooperation of relevant State agencies in the dissemination of this information.

Sec. 6. Enforcement. The respective agency head shall, where authorized by law, prescribe appropriate penalties for violation of regulations adopted pursuant to this order, and shall establish procedures for the enforcement of those regulations. To the extent

permitted by law, he may enter into agreements with State or local governmental agencies for cooperative enforcement of laws and regulations relating to off-road vehicle use.

Sec. 7. Consultation. Before issuing the regulations or administrative instructions required by this order or designating areas or trails as required by this order and those regulations and administrative instructions, the Secretary of the Interior shall, as appropriate, consult with the Secretary of Energy and the Nuclear Regulatory Commission.

Sec. 8. Monitoring of effects and review. (a) The respective agency head shall monitor the effects of the use of off-road vehicles on lands under their jurisdictions. On the basis of the information gathered, they shall from time to time amend or rescind designations of areas or other actions taken pursuant to this order as necessary to further the policy of this order.

(b) The Council on Environmental Quality shall maintain a continuing review of the implementation of this order.

Sec. 9. Special protection of the public lands.

(a) Notwithstanding the provisions of Section 3 of this Order, the respective agency head shall, whenever he determines that the use of off-road vehicles will cause or is causing considerable adverse effects on the soil, vegetation, wildlife, wildlife habitat or cultural or historic resources of particular areas or trails of the public lands, immediately close such areas or trails to the type of off-road vehicle causing such effects, until such time as he determines that such adverse effects have been eliminated and that measures have been implemented to prevent future recurrence.

(b) Each respective agency head is authorized to adopt the policy that portions of the public lands within his jurisdiction shall be closed to use by off-road vehicles except those areas or trails which are suitable and specifically designated as open to such use pursuant to Section 3 of this Order.

RICHARD NIXON

## **Appendix B – Forest Plan Direction, Water Conservation Practices Handbook References Applicable to this Analysis**

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### **FOREST SERVICE HANDBOOK**

#### **DENVER, CO**

#### **FSH 2509.25 - WATERSHED CONSERVATION PRACTICES HANDBOOK**

Region 2 Amendment No. 2509.25-99-1

Effective March 22, 1999

This handbook contains proven watershed conservation practices to protect soil, aquatic, and riparian systems. The practices apply to all actions on National Forest System (NFS) lands and take effect as each Forest Plan is revised. If used properly, they meet or exceed State Best Management Practices (BMPs). Forests may add more specific measures as local conditions merit.

The watershed conservation practices translate legal provisions and scientific principles into solid, common sense stewardship actions. Use of the practices support continued wise resource use. The practices cover five areas: hydrologic function, riparian areas, sediment control, soil productivity, and water purity. Each area has a set of standards. Each standard contains design criteria, as well as monitoring guides and restoration guides.

1. The standards are statements of outcome to ensure that management actions comply with applicable laws and regulations. They are incorporated into each Forest Plan as standards, and cannot be deviated from without an amendment to the Forest Plan.
2. The design criteria are specific ways to meet the standard using current knowledge and technology. They may be revised as knowledge and technology improve. They carry the same weight and must be followed to the same degree as Forest Plan guidelines. Other methods may be used if they result in the same outcome directed by the standard, but the NEPA document must tell why these other methods will be as effective.
3. The monitoring guides give advice on where to focus monitoring efforts to measure compliance with the associated standard, as part of the project activity.
4. The restoration guides give examples of how to restore compliance with the standard and design criteria if they are not now being met.
5. The application of restoration measures often depends on availability of funds that the Forest Service does not control. Failure to keep up with restoration schedules due to lack of proper funds may not be avoidable, but new actions must contribute to long-term restoration.

The following includes Forest Plan Standards (LMP, 1997) and associated Standards and Design Criteria (Guidelines) from the Watershed Conservation Practices Handbook (FSH 2509.25-99-2) that are the most pertinent to winter recreation (see FSH 2509.25 for references). Implementation of these standards and guidelines will protect the soil and

water resources and ensure compliance with legal requirements for the soil, water, and riparian resources. Underlined text relates to the recommended mitigation measures.

## ROUTT FOREST PLAN (LMP, 1997): Standards and Guidelines

### **Forest-wide guideline for Infrastructure- Travelways (P. 1-23).**

Manage motorized use by seasonal use restriction if:

Use causes unacceptable damage to soil and water resources due to weather or seasonal conditions

### **Management Area 3.23: Municipal Watersheds- Water Quality Emphasis**

**Standard:** Emphasize water quality in special uses, grazing, recreation, and other resources. If there are conflicts, make water quality considerations a priority (P. 2-26).

**Standard:** Prohibit gas-powered motorboats on municipal supply reservoirs (P. 2-26).

## WATERSHED CONSERVATION PRACTICES HANDBOOK: Standards and associated Design Criteria

**Standard:** Manage land treatments to conserve site moisture and to protect long-term stream health from damage by increased runoff.

**Standard:** Manage land treatments to maintain enough organic ground cover in each land unit to prevent harmful increased runoff.

**Design Criteria:** Maintain the organic ground cover of each land unit so that pedestals, rills, and surface runoff from the land unit are not increased.

**Standard:** In the water influence zone (WIZ) next to perennial and intermittent streams, lakes, and wetlands, allow only those actions that maintain or improve long-term stream health and riparian ecosystem condition.

**Design Criteria:** Allow no action that will cause long-term change to a lower stream health class in any stream reach.

Keep heavy equipment out of streams during fish spawning, incubation, and emergence period.

**Standard:** Conduct actions so that stream pattern, geometry, and habitats are maintained or improved toward robust stream health.

**Standard:** Maintain long-term ground cover, soil structure, water budgets, and flow patterns of wetlands to sustain their ecological function, per 404 regulations.

**Design Criteria:** Keep ground vehicles out of wetlands unless protected by at least one foot of packed snow or two inches of frozen soil.

Do not disrupt water supply or drainage patterns into wetlands. When feasible, keep roads and trails out of wetlands.

If roads or trails must enter wetlands, use bridges or raised prisms with diffuse drainage to sustain flow patterns.

**Standard:** Limit roads and other disturbed sites to the minimum feasible number, width, and total length consistent with the purpose of the specific operations, local topography, and climate.

**Design Criteria:** Avoid soil disturbing activities during periods of heavy rain or wet soils. Apply travel restrictions to protect soil and water.

**Standard:** Manage land treatments to limit the sum of severely burned and detrimentally compacted, eroded, and displaced land to no more than 15% of any land unit.

**Design Criteria:** Operate heavy equipment for land treatments only when soil moisture is below the plastic limit, or protected by at least one foot of packed snow or two inches of frozen soil.

**Standard:** Maintain or improve long-term levels of organic matter and nutrients on all lands.

**Standard:** Place new source of chemical and pathogenic pollutants where such pollutants will not reach surface or ground water.

**Design Criteria:** Put vehicle service and fuel areas, chemical storage and use areas on gentle upland sites

**Standard:** Apply runoff controls to disconnect new pollutant sources from surface and ground water.

**Design Criteria:** Install contour berms and trenches around vehicle service areas and refueling areas to fully contain spills. Use liners as needed to prevent seepage to ground water.

## **SPECIFIED MITIGATION MEASURES**

Allow winter motorized recreation when unpacked snow depths equal or exceed 12 inches; exceptions are allowed during the spring and fall season on classified roads across transition zones so long as it does not cause visible damage to the road surface.

Allow use of winter heavy equipment (ie snowcats or grooming machines) when unpacked snow depths equal or exceed 18". Special use permits will be evaluated on a case by case basis.

Prohibit winter-motorized recreation on Fish Creek and Long Lake reservoirs.

Prohibit winter-motorized recreation on any open water surface water.

## Appendix C – NFMA Significance Evaluation

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An assessment of a proposed amendment's significance in the context of the larger forest plan is a crucial part of this process. It is important to note that the definition of significance for amending a forest plan (36 CFR 219.8, FSH 1922.5, and FSM 1909.12, 5.32) is not the same as the definition of significance defined by the National Environmental Policy Act (NEPA). Under NEPA, significance is generally determined by whether a proposal is considered to be a "major federal action significantly affecting the quality of the human environment" (40 CFR 1502.3), or whether the relative severity of the environmental impacts would be significant based on their context and intensity (40 CFR 1508.27).

On the other hand, the National Forest Management Act (NFMA) requires that proposed forest plan amendments be evaluated for whether they would constitute a significant change in the long-term goods, outputs, and services projected for the entire National Forest. The criteria to be examined in an analysis of the significance of a forest plan amendment are detailed in FSH 1909.12, Chapter 5.32 and summarized below.

- Timing: when the change in the Forest Plan would take place relative to the planning period and scheduled revisions of the Plan.
  - Implementation of the decision is expected to take place in late winter 2004-2005 or early winter 2005-2006. The planning period is 10-15 years from the Plan approval date of February 1998. That would make implementation about midway through a fifteen year planning period. At this time, there are no plans to revise the 1997 approved Plan earlier than required by 36 CFR 219.
- Location and Size: location and size of the area affected compared to the size of the overall planning area.
  - The Analysis Area contains approximately 111,000 acres, or 8.15 percent of the Forest. It is a contiguous unit rather than being scattered or distributed across the entire 1.2 million acre planning area.
- Goals, Objectives, and Outputs: how, or to what degree, the amendment would affect the long-term relationship between levels of goods and services projected by the Forest Plan.
  - The modified proposed action responds to the goals and objectives outlined in the *Routt Forest Plan*, and helps move the project area towards desired conditions described in the plan (Forest-wide Goal 2 in the Revised Plan states, "[p]rovide a wide variety of outdoor recreational opportunities and experiences to meet the full range of visitor expectations" (Revised Plan, p. 1-2).
  - The decision should not affect other winter management activities, such as winter log hauling, because there is an opportunity in the contracting process to make arrangements for different activities. Outputs and goods and services projected in the Plan Final Environmental Impact Statement are expected to remain as predicted.

- Use levels are expected to continue to rise, however the decision to limit selected areas for snowmobile riding may result in motorized use being displaced to other areas of the Forest, or to other public lands in the vicinity.
- Management Prescription: whether the change would apply only to a specific situation, or to future situations across the planning area.
- Changes will apply to a specific area and not apply to any areas outside the area analyzed in this EA or analyzed at a future date. The winter motorized and non-motorized use areas will be designated only within the Middle Yampa Geographic Area, Grizzly Creek Geographic Area, and a small portion of the Red Dirt Geographic Area as defined by the analysis and map. Newly defined terms, and new standards or guidelines will provide direction for the area within the analysis area boundary.

This Plan amendment is determined not to be significant